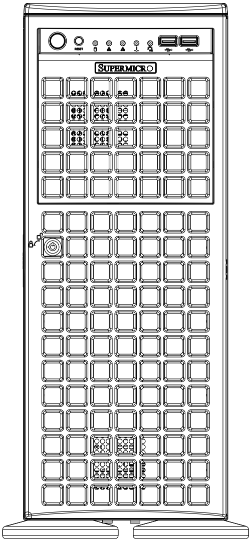
SUPER●®

SC747TG Chassis Series


RESET
SUPERMICRO

SC747TG-R1400B SC747TG-R1400B-SQ

USER'S MANUAL

1.0b

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Manual Revision 1.0b
Release Date: August 17, 2011

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SC747TG 4U chassis. Installation and maintenance should be performed by experienced technicians only.

Supermicro's SC747TG server/workstation is truly industry's most powerful high-performance server chassis.The SC747TG offers nine full-height, full-length PCI-E expansion slots and four sets of 6-pin and 8-pin power connectors to support up to four double-width GPU cards. The SC747TQ chassis features optimized redundant FCC (80%+) Gold Level 1400W power supplies, in standard and super-quiet models. The SC747TG chassis has optimized thermal solutions with four hot-swap cooling fans, plus two hot-swappable exhaust fans and incorporating advanced fan speed controls, to accommodate the most demanding GPU applications. Its eight hot-swappable 3.5" SAS/SATA HDDs offer exceptional storage capacity, and its three 5.25" storage modules can be rotated 90° accommodate tower or rack-mountable configurations.

This document lists compatible parts available when this document was published. Always refer to the our Web site for updates on supported parts and configurations.

Manual Organization

Chapter 1 Introduction

The first chapter provides a checklist of the main components included with this chassis and describes the main features of the SC747TG chassis. This chapter also includes contact information.

Chapter 2 System Safety

This chapter lists warnings, precautions, and system safety. You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed before installing and servicing this chassis.

Chapter 3 Chassis Components

Refer here for details on this chassis model including the fans, bays, airflow shields, and other components.

Chapter 4 System Interface

This chapter provides details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

Chapter 5 Chassis Setup and Maintenance

Chapter 5 features detailed information on this chassis. You should follow the procedures given in this chapter when installing, removing, or reconfiguring your chassis.

Chapter 6 Rack Installation

Refer to this chapter for detailed information on chassis rack installation. You should follow the procedures given in this chapter when installing, removing or reconfiguring your chassis into a rack environment.

Appendices

This section lists compatible cables, power supply specifications, and compatible backplanes. Not all compatible backplanes are listed. Refer to our Web site for the latest compatible backplane information.

Appendix A Chassis Cables

Appendix B Power Supply Specifications

Appendix C SAS-747TQ Backplane Manual

Appendix D M35S and M35T1 Mobile Rack Specifications

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Chapter 1

Introduction

1-1 Overview

Supermicro's SC747TG server/workstation chassis is true industry's most powerful high-performance server chassis. The SC747TG offers nine full-height, full-length PCI slots and four sets of power connectors to support up to four double-width GPU cards. The SC747TG is optimized with redundant high-efficiency (93%) Gold Level 1400 Watt power supplies, PMBus support and optimized thermal solutions with four hot-swappable cooling fans, plus two hot-swappable exhaust fans which incorporate advanced speed controls to accomodate the most demanding GPU applications. Eight hot-swappable SAS/SATA hard drives offer exceptional storage capacity and three 5.25" storage modules can rotate ninety degrees to accomodate tower or rack mounted configurations.

1-2 Shipping List

Please visit the Supermicro Web site for the latest shipping lists and part numbers for your particular chassis model: http://www.supermicro.com/products/chassis/4U/?chs=747

SC747TG Chassis				
Model	**CPU**	**HDD**	**I/O Slots**	**Power Supply**
SC747TG-R1400B	DP/UP	8x SAS/SATA	9x FF	1400W 80%+ Gold (Redundant)
SC747TG-R1400B-SQ	DP/UP	8x SAS/SATA	9x FF	1400W 80%+ Gold Super Quiet (Redundant)

Legend
UP = Single Processor Support
DP = Dual Processor Support
FF = Full-height, Full-length

1-3 Chassis Features

The SC747TG 4U high-performance chassis includes the following features:

CPU

The SC747TG chassis supports single or dual processor.

Hard Drives

The SC747TG chassis features eight slots for SAS/SATA drives. These drives are hot -swappable. Once set up correctly, these drives can be removed without powering down the server.

PCI Slots

Each SC747TG SQ model chassis includes nine full-height, full-length PCI slots. Each SC747TG model chassis includes eleven full-height, full-length PCI slots.

Peripheral Drives

Each SC747TG chassis provides three 5.25” peripheral drive bays for floppy drives, DVD-ROM/CD-ROM drives, or additional hard drives.

Other Features

Other onboard features are included to promote system health. These include four cooling fans, two exhaust fans, a convenient power switch, reset button, and five LED indicators.

1-4 Contacting Supermicro

Headquarters

Address: Super Micro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.
Tel: +1 (408) 503-8000
Fax: +1 (408) 503-8008
Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)
Web Site: www.supermicro.com

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Fax: +886-(2) 8226-3991
Web Site: www.supermicro.com.tw
Technical Support:
Email: support@supermicro.com.tw
Tel: +886-(2)-8226-5990

Notes

Chapter 2

System Safety

2-1 Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following the steps in order given should enable you to have your chassis set up and operational within a minimal amount of time. This quick setup assumes that you are an experienced technician, familiar with common concepts and terminology.

2-2 Warnings and Precautions

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with carrier who delivered your system.

Decide on a suitable location for the rack unit that will hold that chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.

You will also need it placed near at least one grounded power outlet. When configured, the SC747TG chassis includes a redundant power supply and requires two grounded outlets.

2-3 Preparing for Setup

The SC747TG chassis includes a set of rail assemblies, including the mounting brackets and the mounting screws you will need to install the systems into the rack. Please read this manual in its entirety before you begin the installation procedure.

2-4 Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the SC747TG from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.

- Do not work alone when working with high-voltage components.

- Power should always be disconnected from the system when removing or installing main system components, such as the serverboard, memory modules and the DVD-ROM and floppy drives (not necessary for hot-swappable drives). When disconnecting power, you should first power down the system with the operating system and then unplug the power cords from all the power supply modules in the system.

- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power, if necessary.

- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- The power supply power cord must include a grounding plug and must be plugged into grounded electrical outlets.

- Serverboard battery: CAUTION - There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarities This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

- DVD-ROM laser: CAUTION - this server may have come equipped with a DVD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

2-5 General Safety Precautions

- Keep the area around the chassis clean and free of clutter.

- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.

- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.

- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.

- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

2-6 System Safety

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- Use a grounded wrist strap designed to prevent static discharge.

- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.

- Touch a grounded metal object before removing any board from its antistatic bag.

- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.

- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.

- When handling chips or modules, avoid touching their pins.

- Put the serverboard and peripherals back into their antistatic bags when not in use.

- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

Chapter 3

Chassis Components

3-1 Overview

This chapter describes the most common components included with your chassis. Some components listed may not be included or may not be compatible with your particular chassis model. For more information, see the installation instructions detailed later in this manual.

3-2 Components

Chassis

For the latest shipping lists, visit our Web site at: http://www.supermicro.com.

- SC747TG model chassis includes four hot-swappable system cooling fans, two exhaust fans, and two power supplies.

- SC747TG-SQ model chassis includes two hot-swappable system fans and one exhaust fan and two power supplies.

The color of both chassis models is dark gray.

Backplane

Each SC747TG chassis comes with a 4U backplane. Depending on your order, your backplane will accept SAS/SATA. For more information regarding compatible backplanes, view the appendices found at the end of this manual. In addition, visit our Web site for the latest information: http://www.supermicro.com.

Fans

The SC747TG chassis accepts four system fans and two rear exhaust fans. System fans are powered from the serverboard. These fans are 4U high and are powered by 4-pin connectors.

Mounting Rails (optional)

The SC747TG can be placed in a rack for secure storage and use. To install the system into a rack, follow the step-by-step instructions included in this manual.

Power Supply

Each SC747TG chassis model includes a (80%+) Gold Level 1400W redundant (1+1) power supply, rated at 1400 Watts in standard or super-quiet models. In the unlikely event your power supply fails, replacement is simple and can be done without tools.

3-3 Where to get Replacement Components

Though not frequently, you may need replacement parts for your system. To ensure the highest level of professional service and technical support, we strongly recommend purchasing exclusively from our Supermicro Authorized Distributors/ System Integrators/Resellers. A list of Supermicro Authorized Distributors/System Integrators/Reseller can be found at: http://www.supermicro.com. Click the Where to Buy link.

Chapter 4

System Interface

4-1 Overview

There are several LEDs on the control panel as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. SC747TG models have two buttons on the chassis a control panel, a power on/off button and a reset button. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

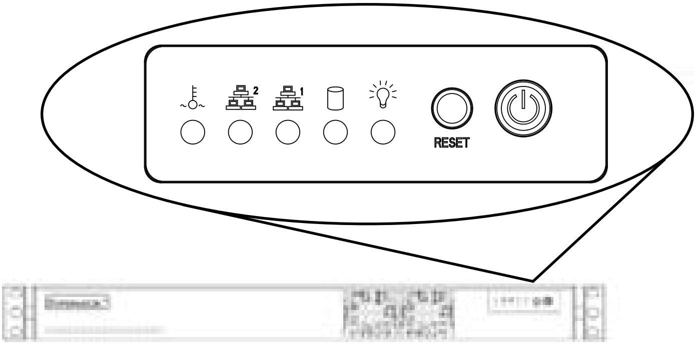
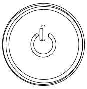


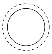
Figure 4-1: Front LEDs

4-2 Control Panel Buttons

There are two push-buttons located on the front of the chassis. These are power on/off button and a reset button.



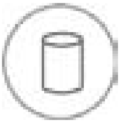
- **Power:** The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.



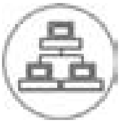
- **Reset:** The reset button is used to reboot the system.

4-3 Control Panel LEDs

The control panel located on the front of the SC747TG chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.



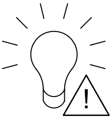
- **HDD:** Indicates IDE channel activity. SAS/SATA drive, and/or DVD-ROM drive activity when flashing.



- **NIC1:** Indicates network activity on GLAN1 when flashing.

- **NIC2:** Indicates network activity on GLAN2 when flashing.

- **Overheat/Fan Fail:** When this LED flashes it indicates a fan failure. When continuously on (not flashing) it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly. This LED will remain flashing or on as long as the overheat condition exists.



- **Power Fail:** Indicates a power failure to the system's power supply units.

4-4 Drive Carrier LEDs

Your chassis uses SAS/SATA drives.

SAS/SATA Drives

Each SAS/SATA drive carrier has two LEDs.

- Green: Each Serial ATA drive carrier has a green LED. When illuminated, this green LED (on the front of the SATA drive carrier) indicates drive activity. A connection to the SATA backplane enables this LED to blink on and off when that particular drive is being accessed.
- Red: The red LED indicates a SAS/SATA drive failure. If one of the SAS/SATA drives fail, you should be notified by your system management software.

Chapter 5

Chassis Setup and Maintenance

5-1 Overview

This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool you will need is a Phillips screwdriver. Print this page to use as a reference while setting up your chassis.

5-2 Installation and Maintenance

Installation Procedures:
Chassis Covers
Removing the Main Cover
Opening the Front Cover
Configuring the Storage Module
Installing Hard Drives
Installing the Motherboard
IO Shield Installation
Permanent and Optional Standoffs
Installing the Heatsink
Power Supply Connections
Configuring the Expansion Slots
Installing Double-Width Graphics Cards

General Maintenance:
General Maintenance: Systems Fans
General Maintenance: Power Supply

Warning: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: System Safety and the warning/precautions listed in the setup instructions.

5-3 Chassis Covers

The SC747TG chassis has three covers, the main cover, the top cover and the front cover. This section of the manual is describes removing the main cover, and opening the front cover. Removing the top cover is described in Chapter 6, in the section titled Installing a Chassis onto a Rack.

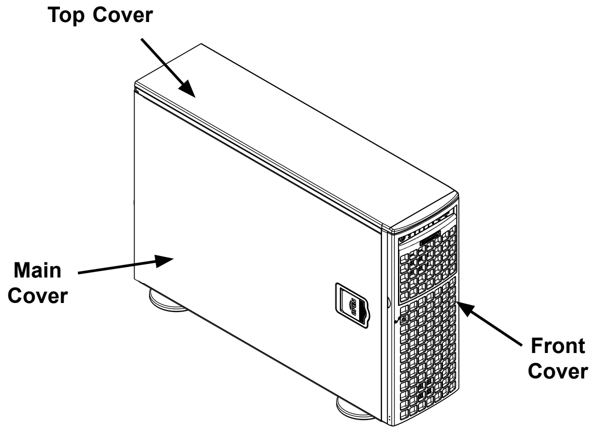

Top Cover
Main Cover
Front Cover

Figure 5-1: Identifying the Chassis Covers

Removing the Main Cover

Removing the Chassis Main Cover

1. Lift up and back on the main cover handle, which secures the cover to the chassis.
2. Lift the main cover off of the chassis.

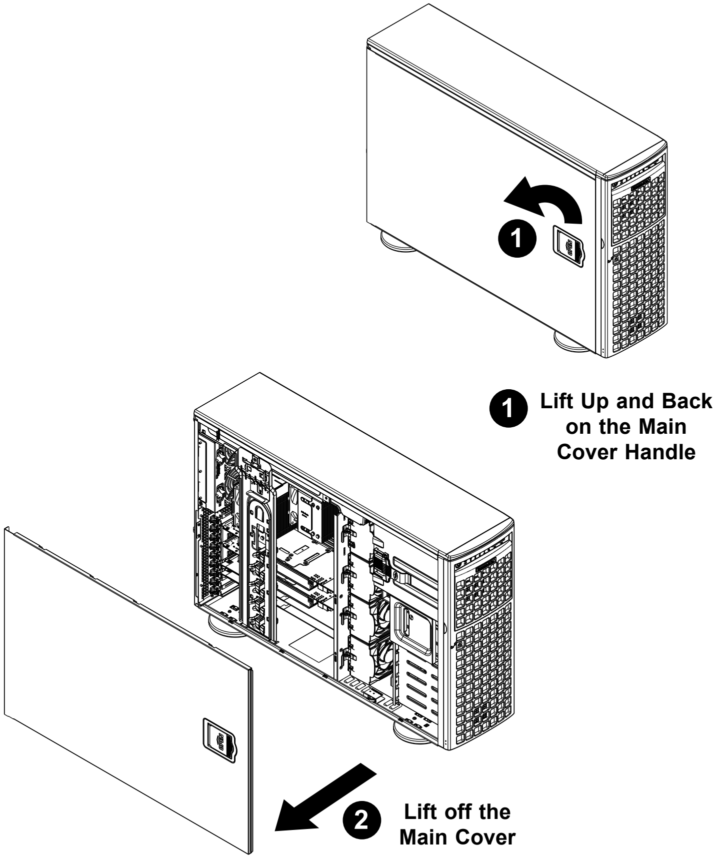

1
1 Lift Up and Back on the Main Cover Handle
2 Lift off the Main Cover

Figure 5-2: Removing the Main Cover

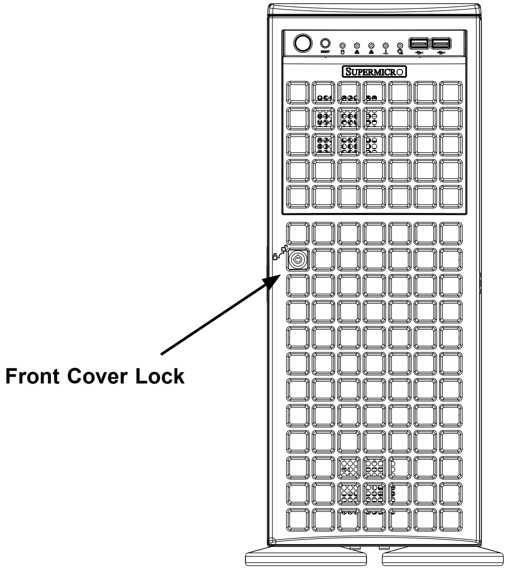


Figure 5-3: Opening the Front Cover

Opening the Front Cover

The front cover houses up to eight hot-swappable hard drives. The cover can be locked to prevent unauthorized access. The key to this lock is shipped with the system.

Opening the Front Cover

1. Unlock the front cover using the key shipped with the system.

2. Gently pull the cover open.

5-4 Configuring the the Storage Module

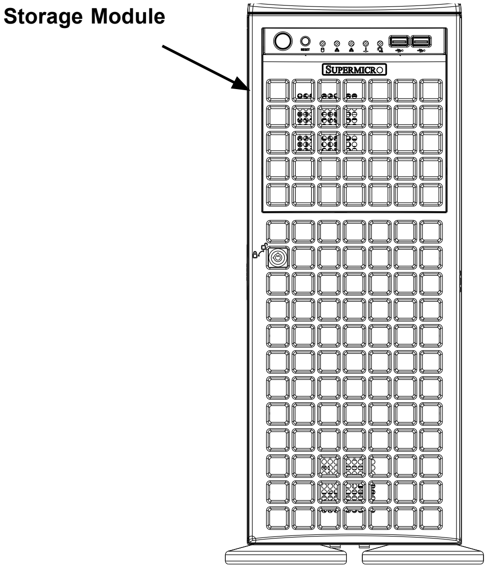


Figure 5-4: Chassis in Tower Mode

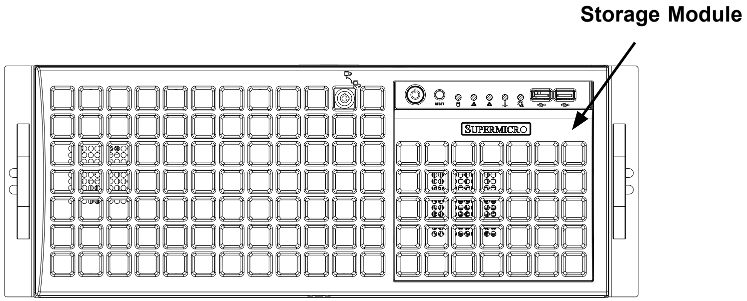


Figure 5-5: Chassis in Rack Mount Mode

Tower or Rack Configuration

The SC747TG chassis is shipped in tower mode and can be used immediately as a desktop server. If the chassis is to be used in a rack, the storage module must be rotated ninety degrees and the storage moudule cover must be replaced. This can be done before, during, or after setup. It is not necessary to replace the storage module cover when the chassis is in the tower configuration.

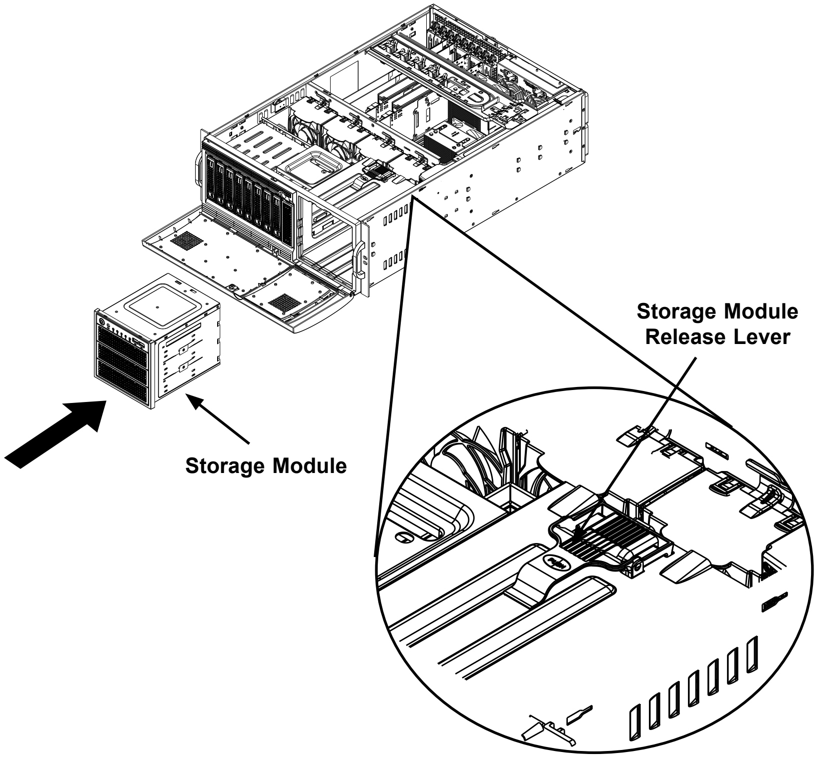


Figure 5-6: Remove the Storage Module

Rotating the Storage Module for Rack Mounting

1. Open the chassis cover.
2. Locate the storage module and disconnect any cables from the storage module to any component in the chassis.
3. Push the storage module release lever. This lever unlocks the storage module.
4. Grasp the external edges of the storage module and pull the unit from the chassis.
5. Turn the storage module ninety degrees as illustrated.
6. Reinsert the module into the chassis and reconnect the cables.

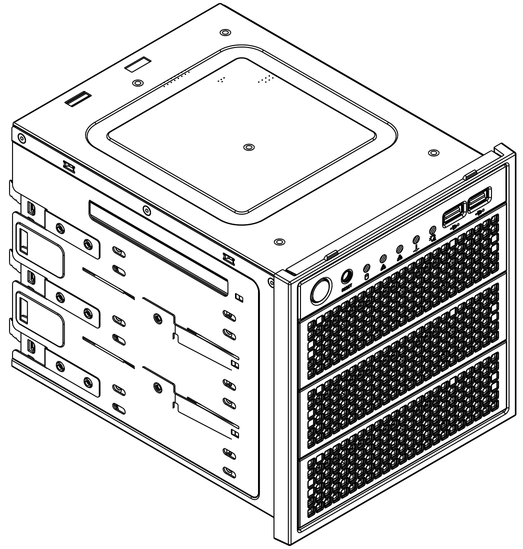


Figure 5-7: Chassis Storage Module

Installing Drives in the Storage Module

The storage module includes three full-sized drive bays and the front LED panel. The storage module can be configured in one of three ways:

1. Add up to three extra hard drives to the drive trays.
2. Add up to three peripheral drives (CD-ROM, DVD-ROM, etc.) drive trays.
3. Add five hot-swappable hard drives to the storage module. This configuration requires a mobile rack. More information on mobile rack installation can be found in the appendices at the end of this manual.

Warning! Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at www.supermicro.com

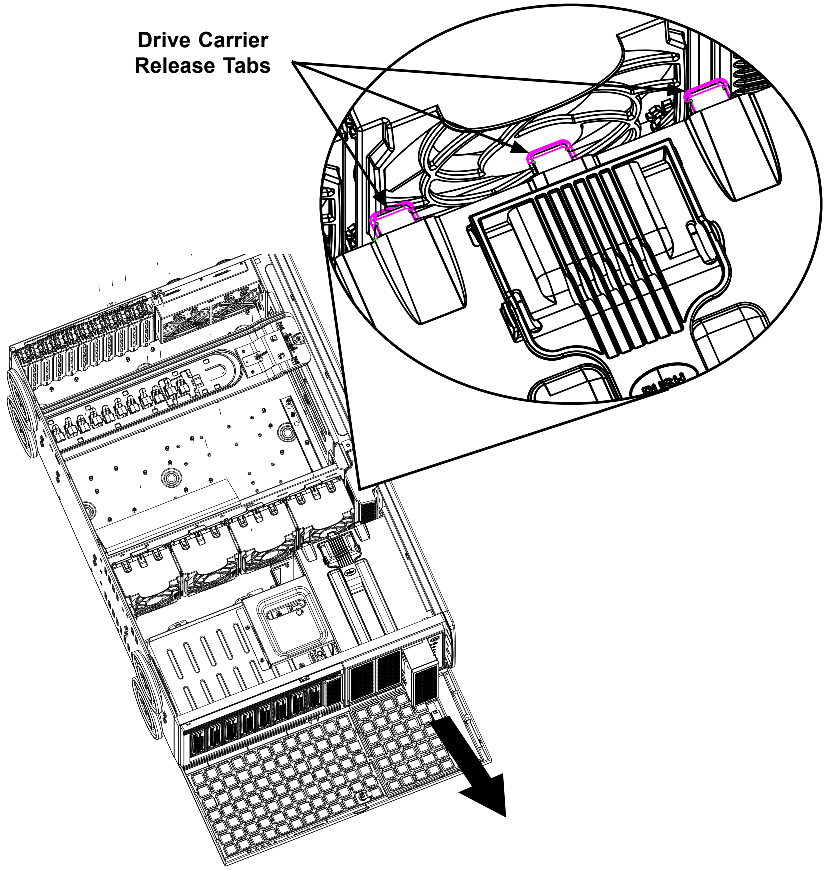


Figure 5-8: Removing a Drive Carrier

Adding Hard Drives to the Drive Carriers

1. Open the chassis cover.
2. Locate the drive carrier release tab for the slot you want to place the peripheral drive.
3. Push the drive carrier toward the front of the chassis.

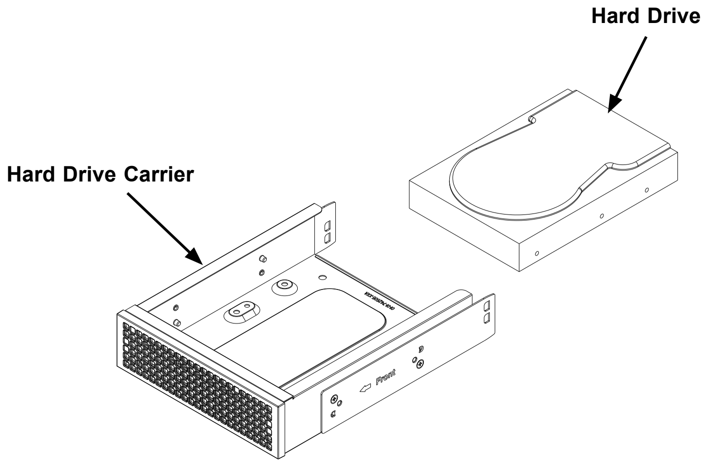


Figure 5-9: Adding a Hard Drive to the Drive Carrier

4. Place the hard drive to the hard drive carrier. Make sure the hard drive can be SAS or SATA depending on your motherboard. The hard drive may not completely fill the carrier.
5. Secure the hard drive to the carrier with four screws from the bottom.
6. Slide the hard drive into the chassis until the carrier clicks into place.
7. Repeat these steps for each hard drive carrier.

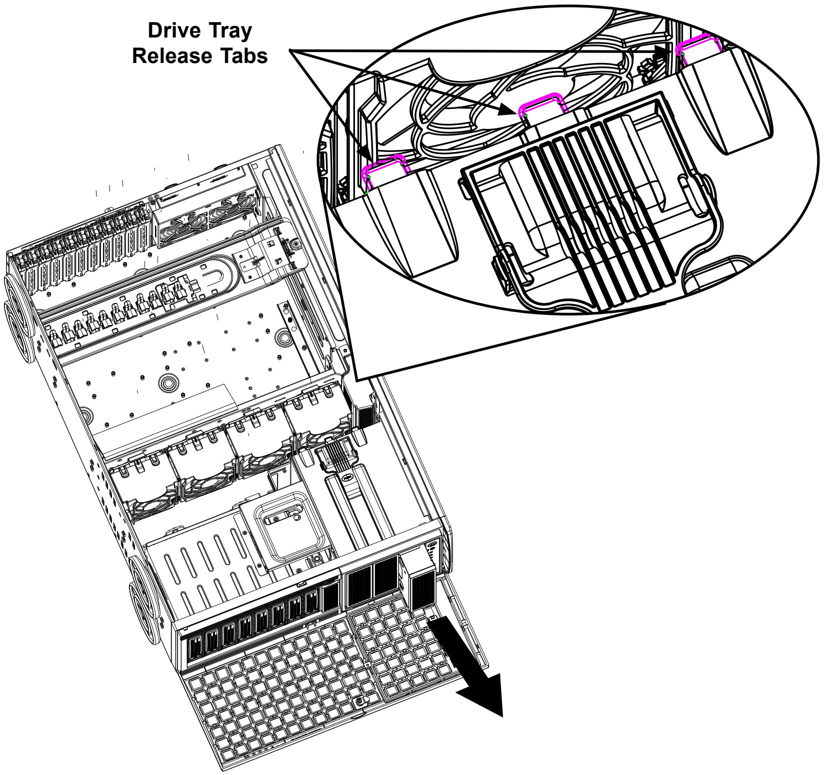


Figure 5-10: Removing a Drive Tray

Adding up to three peripheral drives (DVD-ROM, CD-ROM, peripheral drive, etc.) to the drive trays:

Adding Peripheral Drives

1. Open the chassis cover.

2. Locate the drive tray release tab for the slot you want to place the peripheral drive.

3. Push the drive tray toward the front of the chassis

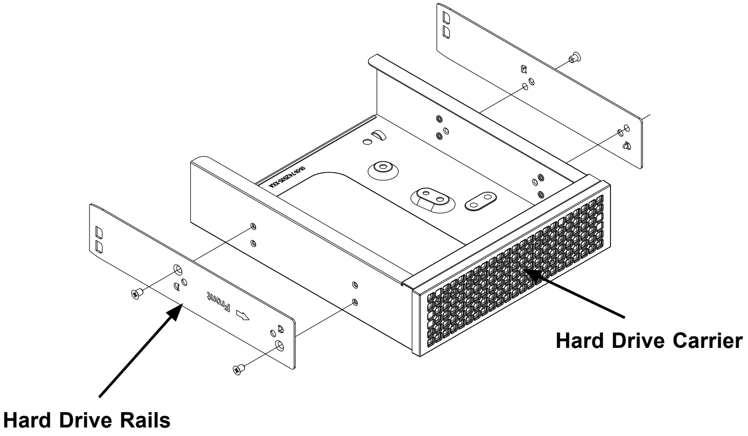


Figure 5-11: Adding Hard Drive Rails to the DVD-ROM Drive

4. Remove the hard drive carrier rails from the hard drive carrier. To do this, you must remove two screws from each side.

5. Attach the rails to a DVD-ROM, CD-ROM or other peripheral. The rails should fit any standard sized peripherals.

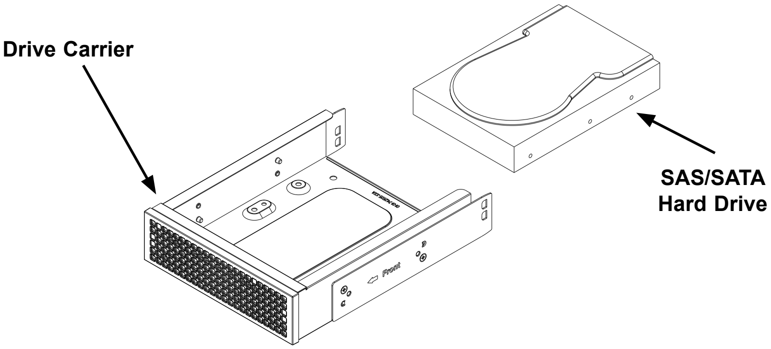


Figure 5-12: Removing a Dummy Drive Carrier

6. Remove the screws securing the dummy drive to the drive carrier.

7. Place a hard drive in the drive carrier.

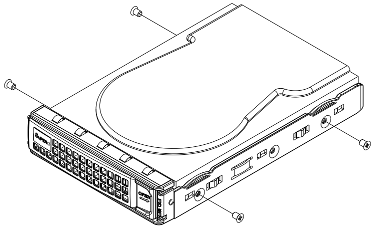


Figure 5-13: Installing a Hard Drive

8. Secure the hard drive to the tray using four screws.

9. Insert the hard drive into the chassis. To do this:
   10a. Press the hard drive release button to extend the drive tray handle.
   10b. Insert the hard drive into the chassis and close the handle to lock the hard drive into place.

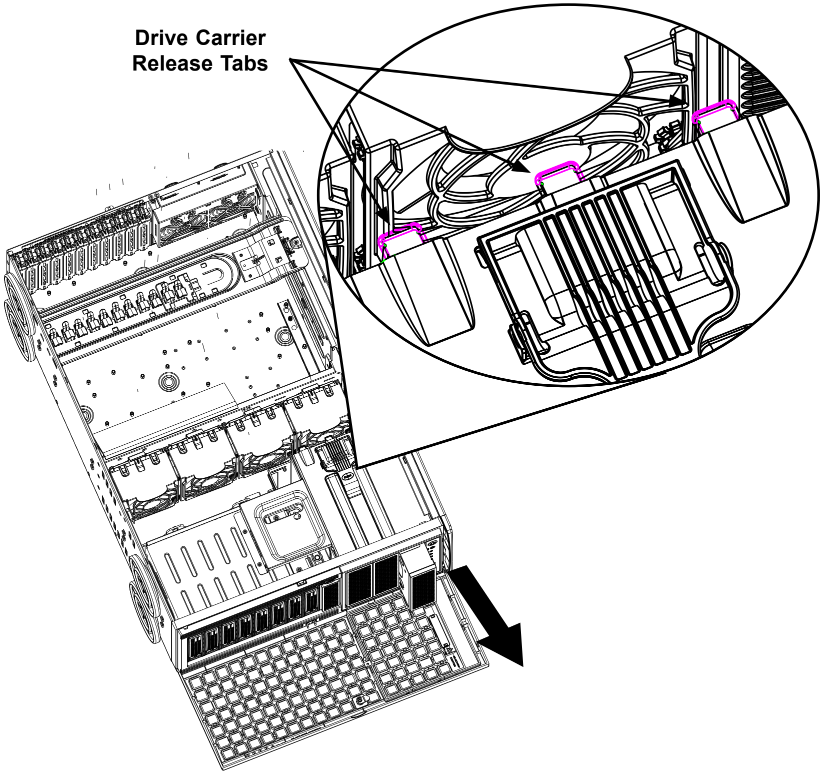


Figure 5-14: Removing a Drive Tray

Adding Five Hard Drives Using a Supermicro Mobile Rack

The SC747TG chassis accepts a CSE-M35T-1/CSE-M35TQ mobile rack to install extra hot-swappable hard drives. The mobile rack goes into the storage module which goes into the chassis.

For more information on mobile rack installation and use, visit the Supermicro Web site at www.supermicro.com.

Adding Hard Drives to a Supermicro Mobile Rack

1. Open the chassis cover.

2. Locate the drive release tabs.

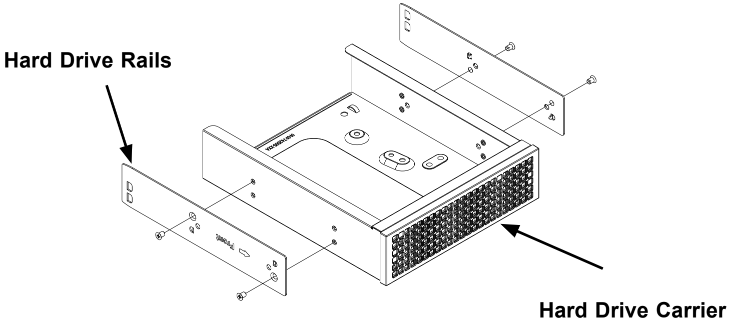


Figure 5-15: Removing the Hard Drive Rails

3. Pull the first drive release tab and push the drive carrier toward the front of the chassis. Repeat this for all three tabs.

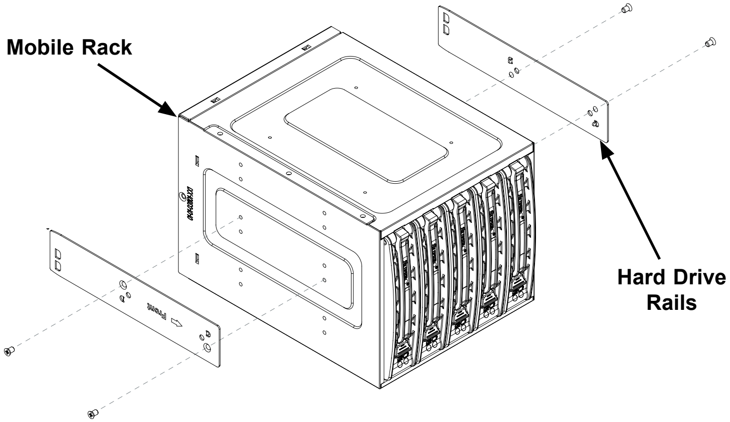


Figure 5-16: Adding Hard Drive Rails to a Storage Rack

4. Remove the hard drive carrier rails from the hard drive tray by removing the two screws from each side. Do this for all three hard drive carriers.

5. Attach the rails to a DVD-ROM, CD-ROM or other peripheral. The rails should fit any standard sized peripherals.

6. Install two hard drive rails to the mobile rack. Each individual rail requires two screws. Also, make sure the arrow on the rail points toward the front of the chassis.

7. Slide the mobile rack into the storage module and chassis.

5-5 Installing Hard Drives

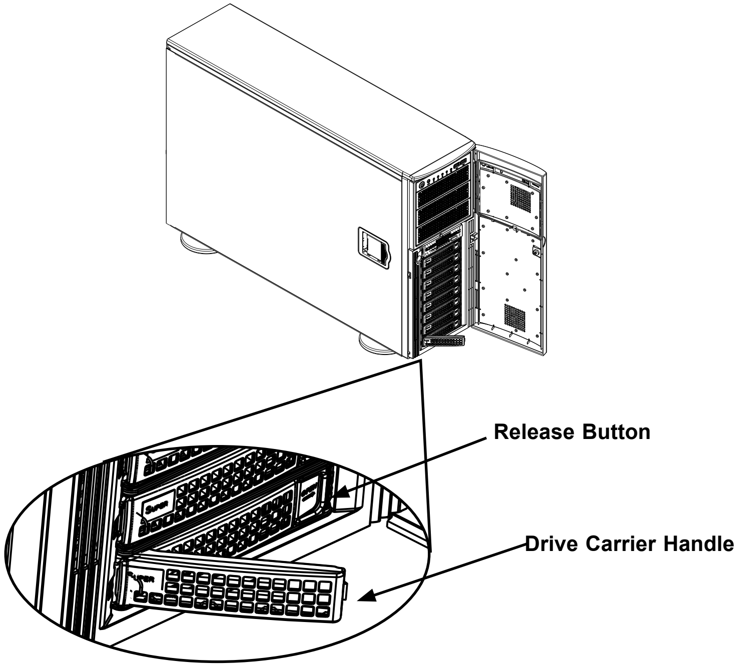


Figure 5-17: Installing Hard Drives

Installing Hard Drives into the Chassis

The drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow for the drive bays.

Installing Hard Drives

1. Unlock and open the chassis cover.

2. Press the release button to extend the drive carrier handle.

3. Using the handle, pull the drive tray out by the handle. The drive is hot-swappable; there are no cables to disconnect.

5-6 Installing the Motherboard

I/O Slot Shield Installation

The I/O shield holds the motherboard ports in place. Install the I/O shield before you install the motherboard.

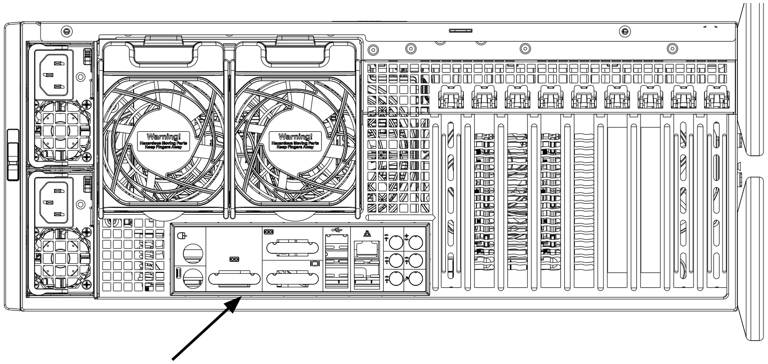


Figure 5-18: SC747TG Chassis I/O Shield

Installing the I/O Shield

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, and precautions.
2. Open the chassis cover.
3. Choose the proper I/O shield for the motherboard you are installing.
4. With the illustrations facing the outside of the chassis, place the shield into the space provided in the rear of the chassis. Once installed, the motherboard ports will hold the I/O shield in place.

Permanent and Optional Standoffs

Standoffs prevent short circuits by securing space between the motherboard and the chassis surface. The SC747TG chassis packaging includes optional standoffs (hexagon shaped posts). These standoffs accept the rounded Phillips head screws included in the SC747TG accessories packaging. Compare the holes in the motherboard to those in the chassis. Add or remove standoffs as needed.

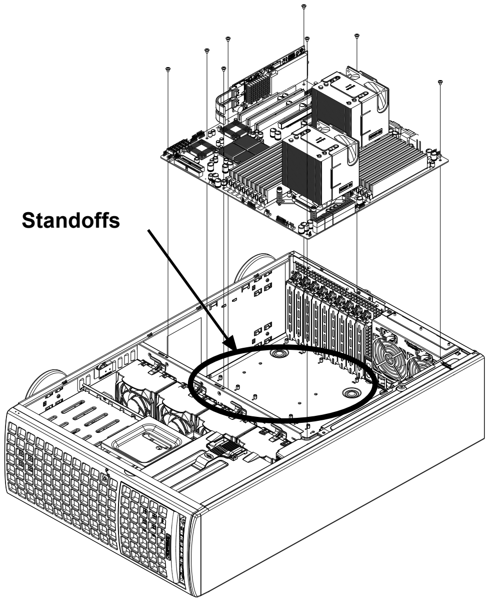


Figure 5-19: Chassis Standoffs

Installing the Motherboard

Installing the Motherboard into the Chassis

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, and precautions.

2. Disconnect the power supply and lay the chassis on a flat surface.

3. Open the chassis cover.

4. As required by your motherboard, install standoffs in any areas that do not have a permanent standoff. To do this:

   A. Place a hexagonal standoff screw through the bottom the chassis.

   B. Secure the screw with the hexagon nut (rounded side up).

5. Lay the motherboard on the chassis aligning the permanent and optional standoffs.

6. Secure the motherboard to the chassis using the rounded, Phillips head screws. Do not exceed more than eight pounds of torque per square inch when tightening down the motherboard.

7. Secure the CPU(s), heatsinks, and other components to the motherboard, chassis, and/or backplane as needed.

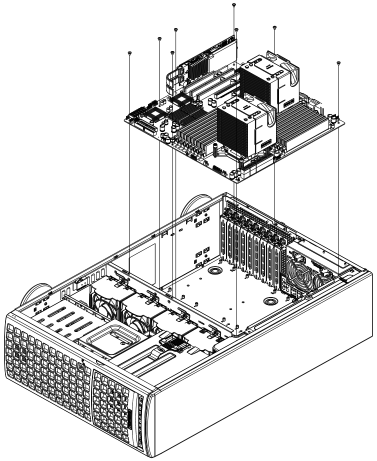


Figure 5-20: Installing the Motherboard

Installing the Active Heatsink

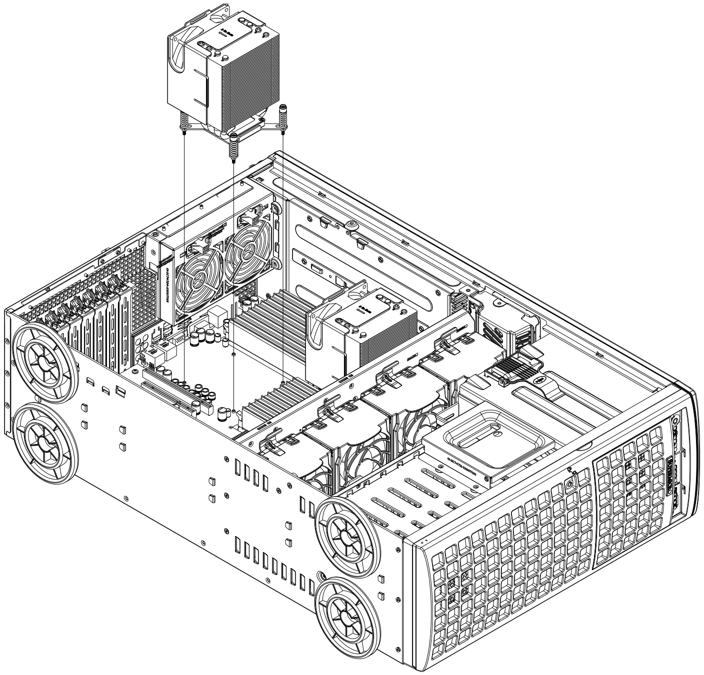


Figure 5-21: Installing the Active Heatsink

Installation of the active heatsink will vary, depending upon the model of heatsink, motherboard and CPU used in the system. For more details refer to the user manuals of these components.

Power Supply Connections

Connect each of the following cables, as required, by your motherboard manufacturer. In some instances, some cables may not need to be connected. Some cables may not be available with your model.

Power Supply Cable

Name	Qty	Connects to:	Description
20-pin or 24-pin power cable	1	mother-board	The 20-pin or 24-pin power cable provides electricity to the motherboard. and has twenty to twenty-four yellow, black, gray, red, orange, green and blue wires.
HDD power cable	2	backplane	Each cable has three connectors (two hard drive (HDD) and one peripheral drive. Attach the HDD connectors to the backplane. **If you are using a Supermicro backplane, the FDD connector does not need to be attached.**
8-pin mother-board cable	1	mother-board	This cable provides power to the motherboard CPU. This cable has two black and two yellow wires.
4-pin mother-board cable	1	mother-board	This cable provides power to expansion card. It as two black wires and two yellow wires.
5-pin SMBus power cable (small)	1	mother-board	This cable allows the SM (System Management) bus to monitor power supply
2-pin INT cable	1	mother-board	The intrusion detection cable allows the system to log when the server chassis has been opened.

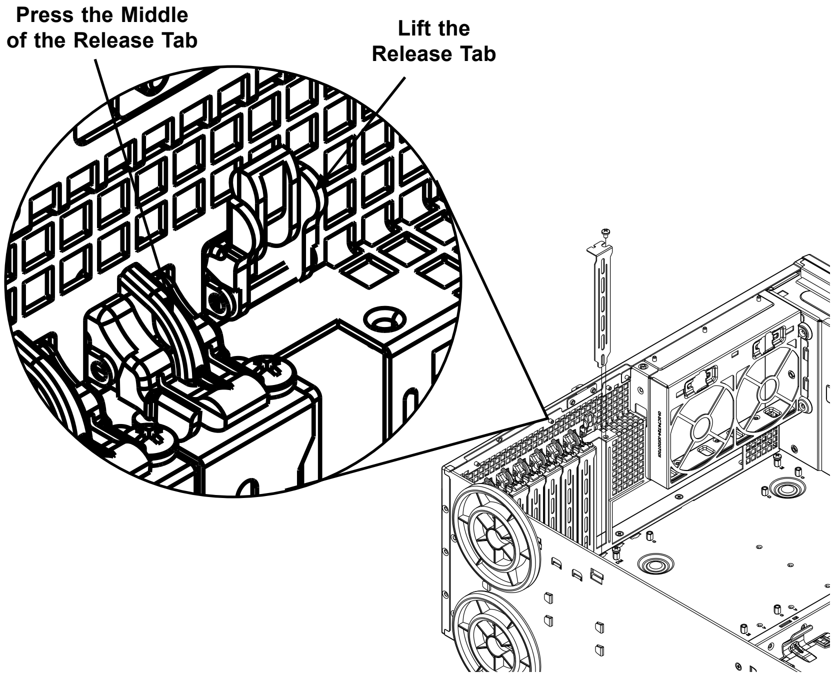


Figure 5-22: Expansion Card Port

Configuring the Expansion Slots

After installing the motherboard, install the expansion cards into PCI slots in the rear of the chassis.

Installing Expansion Cards

1. Locate the release tab on the top of the PCI slot bracket.

2. Gently apply pressure in the middle of the release tab to unlock the PCI slot bracket.

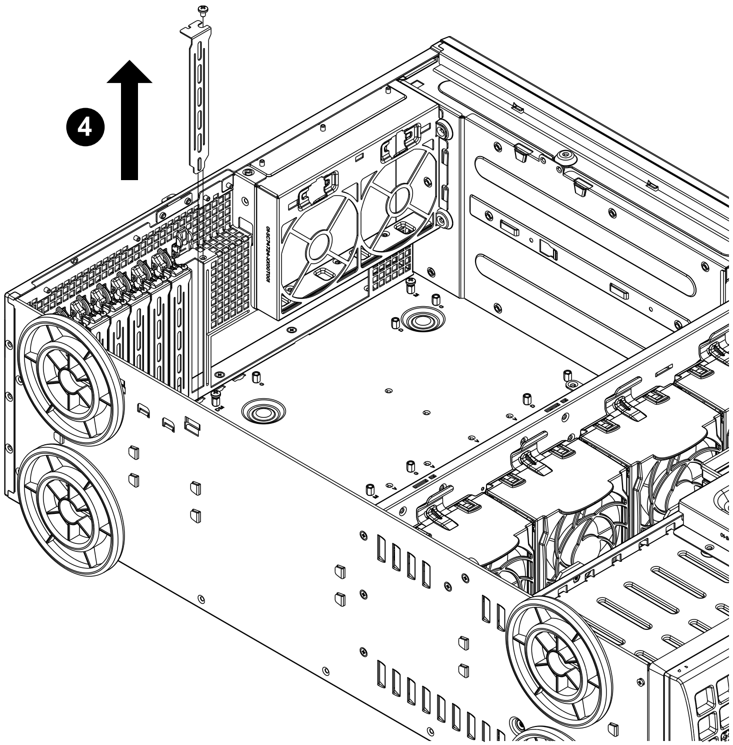


Figure 5-23: Removing the PCI Card Slot Guard

3. Pull the release tab upward.
4. Remove the screw holding the bracket in place and pull the bracket from the chassis.
5. Install your expansion card into the PCI slot bracket and motherboard. To do this, slide the expansion card (with "L" bracket) into the PCI slot and secure the card to the motherboard.
6. Push the PCI bracket release tab down until it locks into place with an audible "click".
7. Secure the expansion card with the screw previously removed from the chassis.
8. Repeat this process with each expansion card you want to install into the chassis.

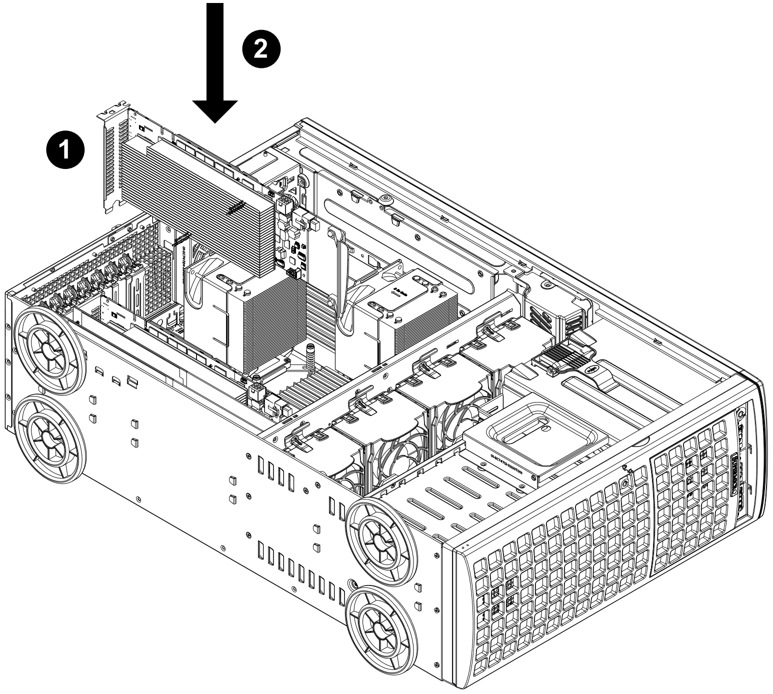


Figure 5-24: Installing Graphics Cards

Installing Double-Width Graphics Cards

The SC747TG chassis is designed to support up to four double-width, high-end graphics cards. An MCP-290-74702-0N graphics card holder is recommended for this application and may be purchased by visiting the Supermicro Web site at http://www.supermicro.com and clicking on the Where to Buy link.

Installing Double-Width Graphics Cards

1. Insert the graphics card into the appropriate expansion card slot
2. Slide the graphics card down onto the motherboard.

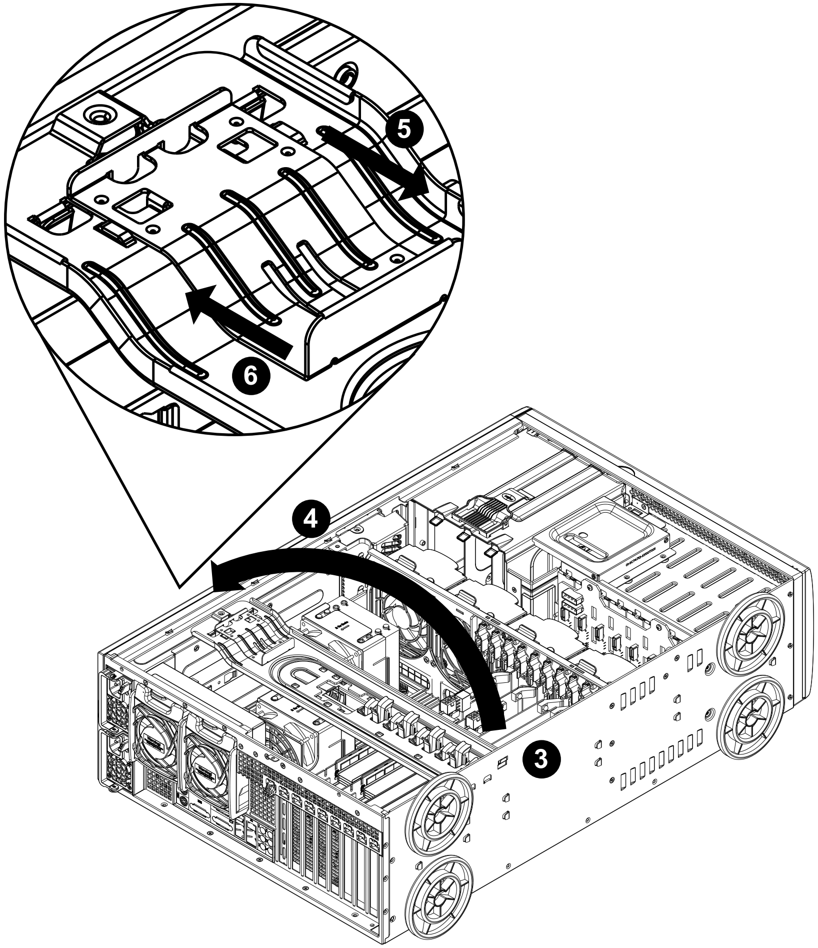


Figure 5-25: Closing the Graphics Card Bracket

3. Place the tabs of the MCP-290-74702-0N graphics card bracket into the slots on the wall of the chassis as illustrated.

4. Lower the bracket down onto the card

5. Pull back the slide lock and lower it over the raised tab as illustrated.

6. Push the slide lock forward, allowing the pins of the slide lock to penetrate the thru holes in the raised tab.

5-7 System Fans

Six heavy-duty fans provide cooling for the chassis. Four cooling fans are located in the mid-section of the chassis with two exhaust fans in the rear. These fans circulate air through the chassis as a means of lowering the chassis internal temperature. The fans come pre-installed in the chassis. Each fan is hot-swappable and can be replaced without removing any connections.

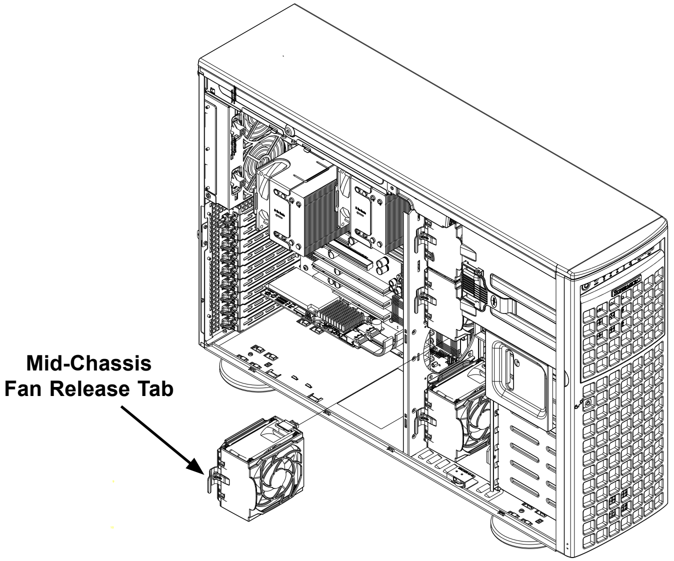


Figure 5-26: Mid-Chassis Fans

Replacing Mid-Chassis Fans

Replacing Mid-Chassis Fans

1. Determine which fan has failed. Because the fans are hot-swappable, the chassis does not need to be powered-down.

2. Press the fan release tab and lift the failed fan from the chassis. Mid-chassis fans must be pulled straight out of the chassis.

3. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans. As soon as the fan is connected, it will begin working.

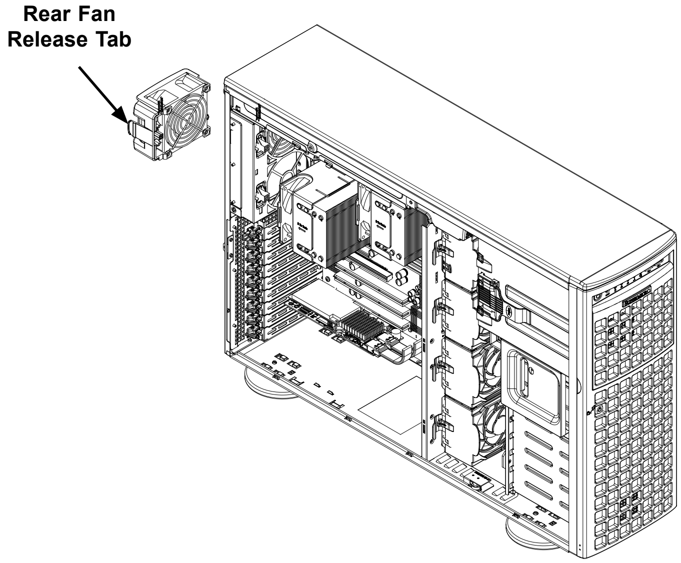


Figure 5-27: Rear Chassis Fans

Replacing Rear System Fans

Replacing the Rear System Fan

1. Determine which fan is not operational.
2. Press the rear fan release tab.
3. Pull the fan away from the chassis by pulling out the top first.
4. Place the new fan in the chassis, inserting the bottom of the fan first.
5. Push the fan into the housing until the fan clicks into place.

5-8 Power Supply

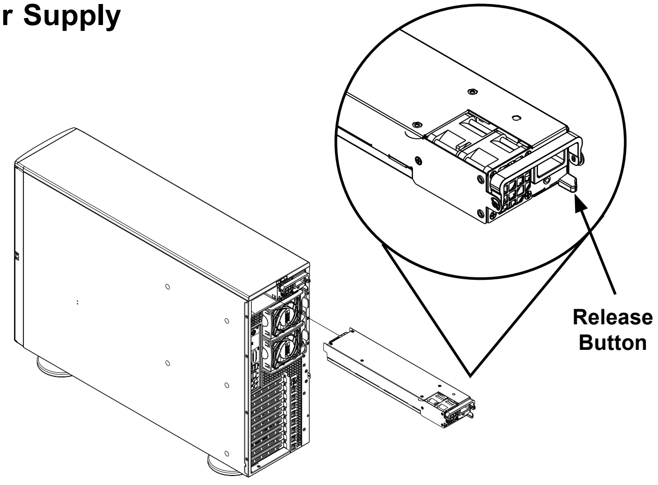


Figure 28: Power Supply Release Button

The SC747TG chassis has a 1400W redundant power supply. This power supply is auto-switching capable. This enables it to automatically sense and operate at a 100v to 240v input voltage. An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating.

Replacing the Power Supply

With a redundant power supply, the system automatically switches to the second power supply if the first should fail.

Replacing the Power Supply

1. Power down the chassis and unplug the power cord. If your chassis includes a redundant power supply (at least two power modules), you can leave the server running and remove only one power supply.
2. Push the release tab (on the back of the power supply) as illustrated.
3. Pull the power supply out using the handle provided.
4. Replace the failed power module with the same model.
5. Push the new power supply module into the power bay until you hear a click.
6. Plug the AC power cord back into the module and power-up the server.

Notes

Chapter 6

Rack Installation

6-1 Overview

This chapter provides instuctions for installing your system into a rack environment. Following the instructions in the order given should enable you to install the system within a minimal amount of time.

6-2 Unpacking the System

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold your chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Be sure to read the Rack and Server Precautions in the next section.

6-3 Preparing for Setup

The box your chassis was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Please read this section in its entirety before you begin the installation procedure.

Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches).

- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.

- This chassis is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and similar environments).

Warnings and Precautions!

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

General Server Precautions

- Review the electrical and general safety precautions that came with the components you are adding to your chassis.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot-plug hard drives and power supply modules to cool before touching them.

- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations and Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer’s maximum rated ambient temperature (TMRA).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

6-4 Installing the Chassis onto a Rack

This section provides information on installing the SC747TG chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

NOTE: The outer rail is adjustable from 26" to 38.25".

Removing the Chassis Cover and Feet

The SC747TG chassis is shipped with the chassis cover and feet pre-installed. Both the feet and cover must be removed for before installing the rails.

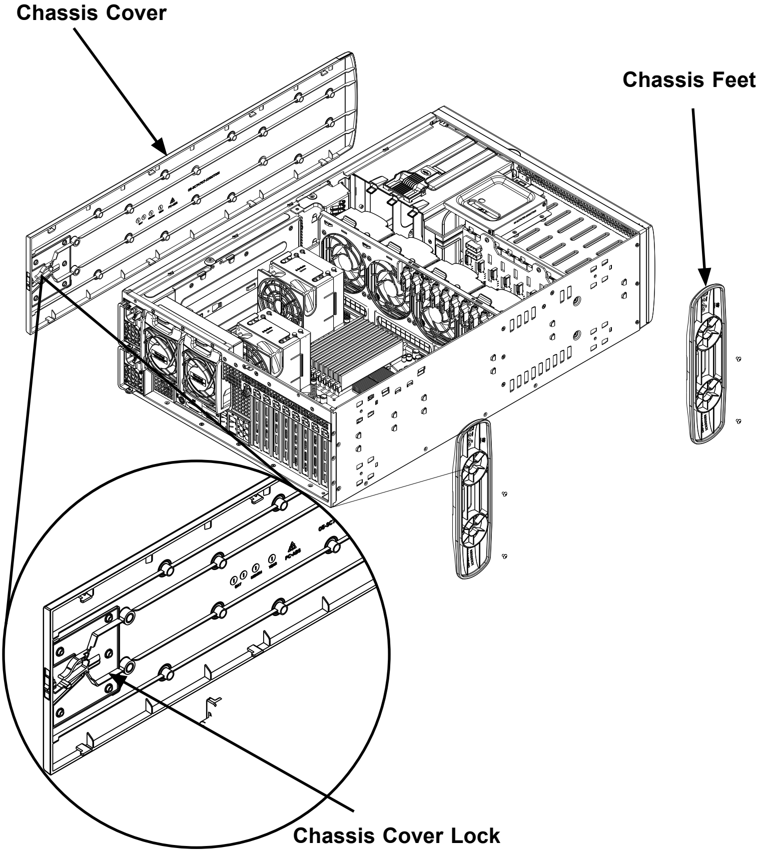


Figure 6-1: Removing the Feet and Chassis Top Cover

Removing the Chassis Top Cover

1. Locate the chassis cover lock (blue lever) at the rear of the chassis cover.

2. Slide the chassis cover lock to the right and push chassis cover forward.

3. Lift the chassis top cover off the chassis.

Removing the Chassis Feet

1. Place the chassis on its side with the chassis side cover facing upward.

2. Remove the screw holding the chassis foot in place.

3. The foot lock is a tab located in the center of the foot that prevents the foot from sliding. Using a flat head screwdriver, **gently** lift the foot lock upward and slide the foot toward the rear of the chassis.

4. Repeat steps 2 and 3 with each remaining foot.

Identifying the Sections of the Rack Rails

The chassis package includes two rack rail assemblies in the rack mounting kit. Each assembly consists of two sections: An inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

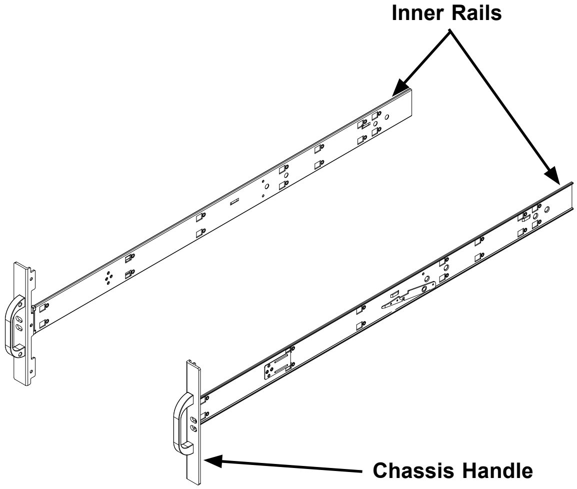


Figure 6-2: Identifying the Inner Rails and Chassis Handles

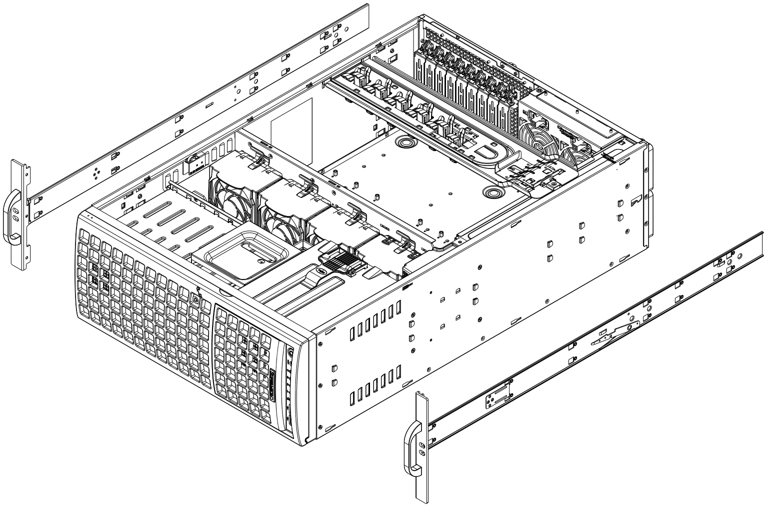


Figure 6-3: Installing the Inner Rack Rails

Installing the Chassis Handles and Inner Rails

Installing the Inner Rails

1. Locate the chassis handles and handle screws.

2. Align the chassis handle with the front of the chassis and secure with the three chassis handle screws.

3. Repeats steps 1 and 2 with the other handle.

4. Locate the inner rails and screws in the shipping package.

5. Align the inner rails against the chassis, as shown. Confirm that the rails are flushed against the edge of the chassis.

6. Tighten the screws. Do not over-tighten.

7. Repeat steps 5 and 6 with the other inner rail.

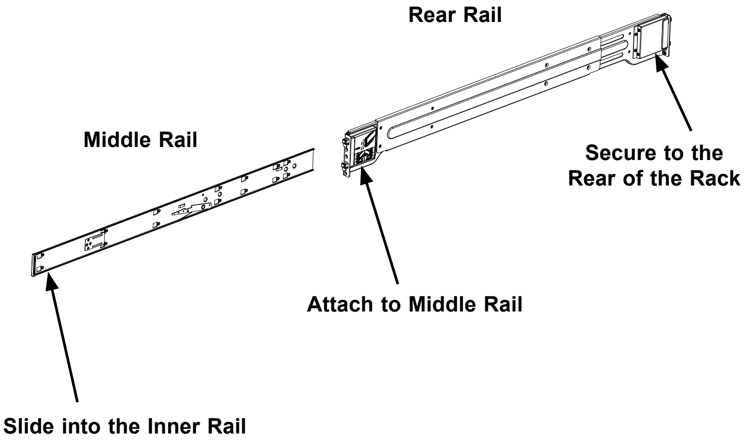

Rear Rail
Middle Rail
Secure to the Rear of the Rack
Attach to Middle Rail
Slide into the Inner Rail

Figure 6-4: Assembling the Outer Rails

Installing the Outer Rails to the Rack

Installing the Outer Rails

1. Attach the rear rail to the middle rail.

2. Adjust both to the proper distance so that the rails fit snugly into the rack.

3. Secure the rear rail with two M5 screws and the rear of the rack. **NOTE:** The outer rail is adjustable from approximately 26" to 38.25".

4. Repeat steps 1-3 for the left outer rail.

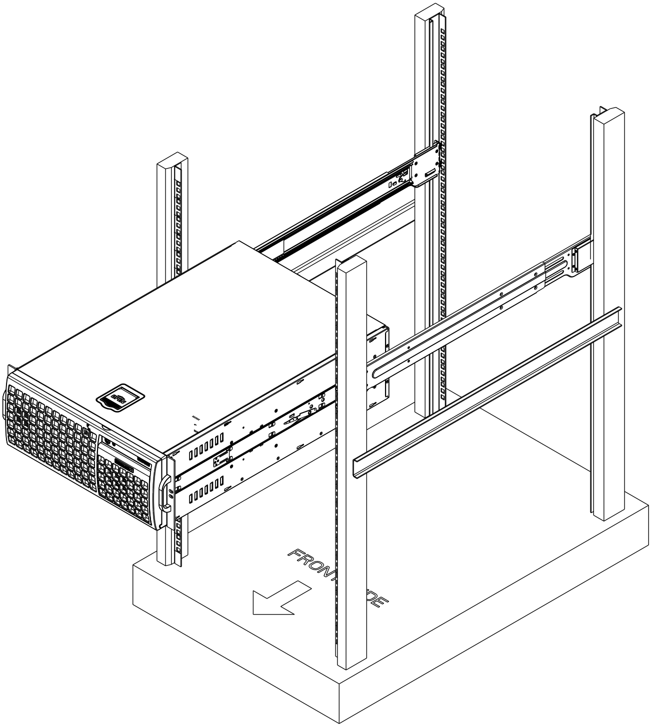


Figure 6-5: Installing the Rack Rails

Installing the Chassis into a Rack

Installing the Chassis

1. Confirm that chassis includes the inner rails and the outer rails.

2. Align the inner chassis rails with the front of the outer rack rails.

3. Slide the inner rails into the outer rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). When the chassis has been pushed completely into the rack, you should hear the locking tabs "click" into the locked position.

6-5 Rack Mounting Instructions

The SC747TG chassis is shipped with the chassis top cover and feet pre-installed. To use the chassis as a desktop server, no other installation is required. Use the instructions in this section to configure the chassis for rack use and need to return the chassis to tower mounting.

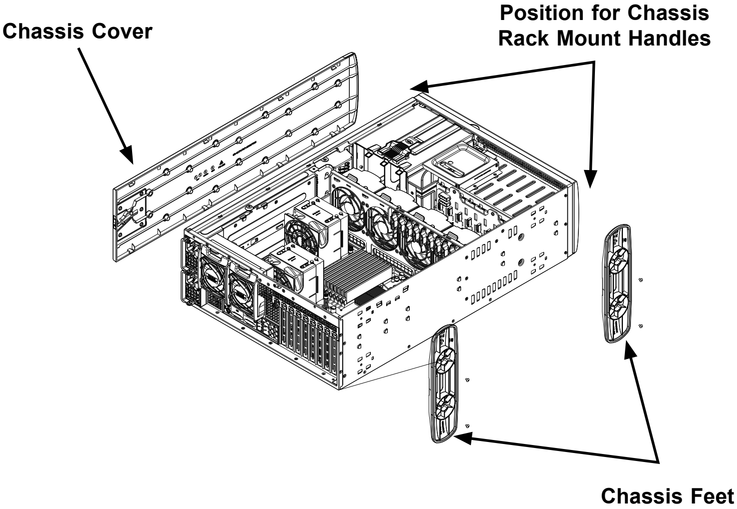


Figure 6-6: Adding Chassis Feet and Top Cover

Installing the Chassis Cover

Installing the Cover

1. Remove the rack mount ears.
2. Align the cover post with the corresponding holes on the top of the chassis and place the cover on top of the chassis. The cover should overhang approximately one-half inch over the front of the chassis.
3. Slide the chassis cover toward the rear of the chassis to lock the cover into place.

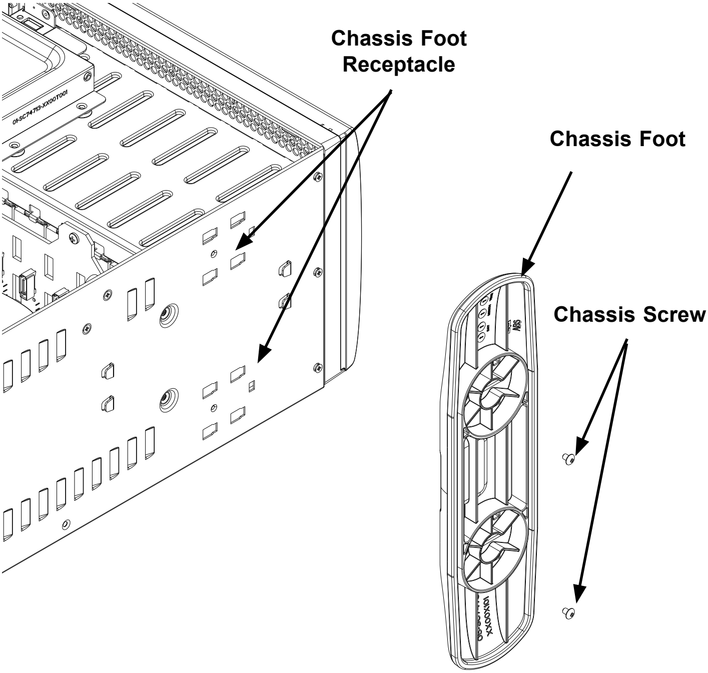

Chassis Foot Receptacle
Chassis Foot
Chassis Screw

Figure 6-7: Placing Chassis Feet

Installing the Feet on the Chassis

Installing the Chassis Feet

1. Place the chassis foot in the foot receptacle and slide the foot toward the front of the chassis. The foot should lock into place.

2. Secure the foot to the chassis using one screw enclosed in the packaging.

3. Repeat steps 1 and 2 for the remaining three chassis feet.

Notes

Appendix A

SC747TG Chassis Cables

A-1 Overview

This appendix lists supported cables for your chassis system. It only includes the most commonly used components and configurations. For more compatible cables, refer to the manufacturer of the motherboard you are using and our Web site at: www.supermicro.com.

A-2 Cables Included with SC747TG Chassis (SAS/SATA)

SC747TG-R1400B			
Part #	**Type**	**Length**	**Description**
CBL-0157L	Cable	40 cm	8-pin to 8-pin ribbon cable with tube for SGPIO
CBL-0179L	Cable	70 cm	SATA cable, flat straight-straight
CBL-0071L	Cable	30" (76 cm)	Round 16-pin to 16-pin ribbon FP cable
CBL-0216L	Cable	200 mm	4-pin to 4-pin middle fan power extension (PWM)
CBL-0286L	Cable	30 cm	4-pin to 4-pin rear fan pwr ext w/ square header(PWM)
CBL-0071L	Cable	30" (76 cm)	Round 16-pin to 16-pin ribbon FP cable.

SC747TG-R1400B-SQ			
Part #	**Type**	**Length**	**Description**
CBL-0157L	Cable	40cm	8-pin to 8-pin ribbon cable with tube for SGPIO
CBL-0179L	Cable	70cm	SATA cable, flat straight-straight
CBL-0071L	Cable	30" (76 cm)	Round 16-pin to 16-pin ribbon FP cable
CBL-0216L	Cable	200mm	4-pin to 4-pin middle fan power extension (PWM)
CBL-0286L	Cable	30cm	4-pin to 4-pin rear fan pwr ext w/ square header(PWM)

A-4 Compatible Cables

These cables are compatible with the SC747TG chassis.

Alternate SAS/SATA Cables

Some compatible motherboards have different connectors. If your motherboard has only one SAS connector that the SAS/SATA cables must share, use one of the following cables. These cables must be purchased separately.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0175L
Alt. Name: "Big Four"

Description: This cable has one SFF-8484 (32-pin) connector on one end and 4 SAS connectors (7 pins each) at the other. This cable connects from the Host (motherboard or other controller) to the backplane SAS hard drive port.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0116
Alt. Name: iPass or "Small Four"

Description: This cable has one ipass (SFF-8087/Mini-SAS) connector (36-pin) at one end and four SAS connectors on the other end. This cable connects from the host (motherboard or other controller) to the backplane SAS hard drive port.

Extending Power Cables

Although Supermicro chassis are designed with to be efficient and cost-effective, some compatible motherboards have power connectors located in different areas.

To use these motherboards you may have to extend the power cables to the mother boards. To do this, use the following chart as a guide.

Power Cable Extenders		
Number of Pins	**Cable Part #**	**Length**
24-pin	CBL-0042	7.9” (20 cm)
20-pin	CBL-0059	7.9” (20 cm)
8-pin	CBL-0062	7.9” (20 cm)
4-pin	CBL-0060	7.9” (20 cm)

Front Panel to the Motherboard

The SC747TG chassis includes a cable to connect the chassis front panel to the motherboard. If your motherboard uses a different connector, use the following list to find a compatible cable.

Front Panel to Motherboard Cable (Ribbon Cable)		
Number of Pins (Front Panel)	**Number of Pins (Motherboard**	**Cable Part #**
16-pin	16-pin	CBL-0049
16-pin	20-pin	CBL-0048
20-pin	20-pin	CBL-0047
16-pin	various*	CBL-0068
20-pin	various*	CBL-0067

* Split cables: Use these cable if your motherboard requires several different connections from the front panel.

Notes

Appendix B

SC747TG Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

	1400W (Redundant)
MFR Part #	PWS-1K41P-1R
AC Input	1200W: 100 - 140V, 50 - 60Hz, 10.5 - 14.7 Amp 1400W: 180 - 240V, 50 - 60Hz, 7.2 - 9.5 Amp
DC Output +5V standby	4 Amp
DC Output +12V	91 Amp @ 100-140V 116 Amp @ 180-240V
With Distributor	+5V: 30 Amp +3.3V: 24 Amp -12V: 0.6 Amp

	1400W-SQ (Super-Quiet) (Redundant)
MFR Part #	PWS-1K41P-1R-SQ
AC Input	1100W: 100 - 140V, 50 - 60Hz, 9.5 - 13.5 Amp 1400W: 180 - 240V, 50 - 60Hz, 7.0 - 9.5 Amp
DC Output +5V standby	4 Amp
DC Output +12V	91 Amp @ 100-140V 116 Amp @ 180-240V
With Distributor	+5V: 30 Amp +3.3V: 24 Amp -12V: 0.6 Amp

Notes

Appendix C

SAS-747TQ Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

C-1 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

C-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the backplane.
- Disconnect the power cable before installing or removing any cables from the backplane.
- Make sure that the backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

C-3 An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

C-4 Introduction to the SAS-747TQ Backplane

The SAS-747TQ backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SAS-747TQ Revision 1.00, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

Jumper Settings and Pin Definitions

C-5 Front Connectors and Jumpers

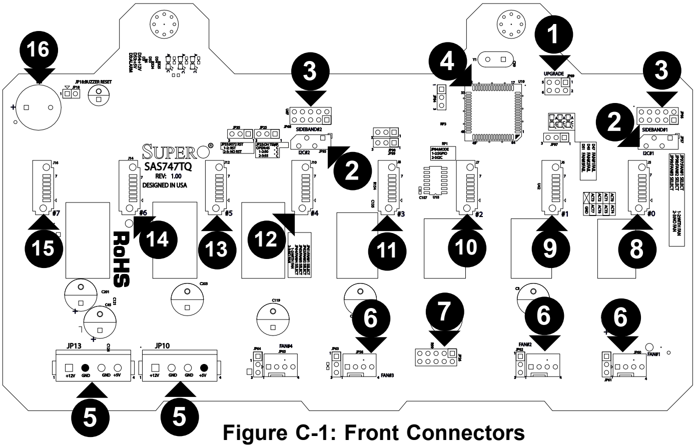

16
1
3
4
3
2
2
UPGRADE
SIDEBAND#2
SIDEBAND#1
I2C#2
I2C#1
SUPERO
SAS747TQ
REV: 1.00
DESIGNED IN USA
RoHS
#7
#6
#5
#4
#3
#2
#1
#0
15
14
13
12
11
10
9
8
6
7
6
6
JP13
JP10
+12V
GND
GND
+5V
FAN#4
FAN#3
FAN#2
FAN#1
5
5

Figure C-1: Front Connectors

Front Connectors

Front Jumpers and Components

1. Upgrade Connector: JP69
2. I²C Connector#1: JP37 and I²C Connector#2 JP95
3. Sideband Connector#1: JP66 and Sideband Connector#2: JP68
4. Chip: MG9072
5. Power Connectors: (4-pin): JP10 and JP13
6. Fan Connectors: JP54, JP56, and JP60
7. ACT_IN #0-7: JP26
8. SAS Port #0: J5
9. SAS Port #1: J6
10. SAS Port #2: J7
11. SAS Port #3: J8
12. SAS Port #4: J10
13. SAS Port #5: J12
14. SAS Port #6: J14
15. SAS Port #7: J16
16. Buzzer: BZ1

C-6 Front Connector and Pin Definitions

1. Upgrade Connector

The upgrade connector, designated JP69, is used for manufacturer's diagnostic purposes only.

2. I²C Connectors

The I²C connectors, designated JP37 and JP95, are used to monitor HDD activity and status. See the table on the right for pin definitions.

I²C Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

3. Sideband Headers

The sideband headers are designated JP66 and JP68. For SES-2 to work properly, you must connect an 8-pin sideband cable. See the table to the right for pin definitions.

NOTE: SGPIO is the default setting for this backplane.

Sideband Headers

Pin #	Definition	Pin #	Definition
2	**SGPIO:** SDIN **I²C:** Backplane Addressing (SB5)	1	Controller ID (SB6)
4	**SGPIO:** SDOUT **I²C:** Reset (SB4)	3	GND (SB2)
6	GND (SB3)	5	**SGPIO:** SLOAD **I²C:**SDA (SB1)
8	Backplane ID (SB7)	7	**SGPIO:** SCLOCK **I²C:**SCL (SB0)
10	No Connection	9	No Connection

4. MG9072 Chip

The MG9072 is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

5. Backplane Main Power Connectors

The 4-pin connectors, designated JP66 and JP68 provide power to the backplane. See the table on the right for pin definitions.

Backplane Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

6. Fan Connectors

The 4-pin connectors, designated JP54, JP56, and JP60 provide power to the fans. See the table on the right for pin definitions.

Fan Connectors

Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	Empty

7. SAS Activity LED Header

The activity LED header, designated JP26, is used to indicate the activity status of each SAS drive. The Activity LED Header is located on the front panel. For the Activity LED Header to work properly, connect using a 10-pin LED cable.

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#0	6	ACT IN#4
2	ACT IN#1	7	ACT IN#5
3	ACT IN#2	8	ACT IN#6
4	ACT IN#3	9	ACT IN#7
5	Empty	10	Ground

8-15. SAS Ports

The SAS ports are used to connect the SAS drive cables. The eight ports are designated #0 - #7. Each port is also compatible with SATA drives.

C-7 Front Jumper Locations and Pin Definitions

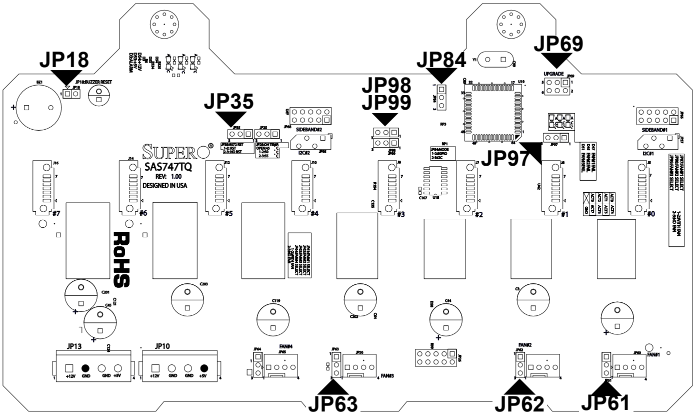
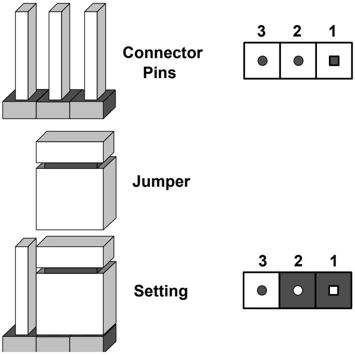

JP18
JP84
JP69
JP98
JP99
JP35
JP97
SUPERO
SAS747TQ
REV: 1.00
DESIGNED IN USA
RoHS
JP13
JP10
+12V
GND
GND
+5V
JP63
JP62
JP61

Figure C-2: Jumper Locations

Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.


Connector Pins
3 2 1
Jumper
Setting
3 2 1

Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP35	1-2: Reset 2-3: No reset	MG9072 chip reset

Socket Settings		
Socket	**Socket Setting**	**Note**
JP18	Connected to front panel	Buzzer reset* Press once to disable buzzer Press twice to enable buzzer

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure

2. Fan failure

3. System temperature over 45º Celsius.

Fan Jumper Settings

This backplane can use up to three fans. To utilize each fan, you must configure **both jumpers** as instructed below.

Fan Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP61	1-2:Enabled 2-3:Disabled	FAN #1 enable/disable
JP97	1-2:Enabled 2-3:Disabled	FAN #1 selection for MG9072 chip
JP62	1-2:Enabled 2-3:Disabled	FAN #2 enable/disable
JP98	1-2:Enabled 2-3:Disabled	FAN #2 selection for MG9072 chip
JP63	1-2:Enabled 2-3:Disabled	FAN #3 enable/disable
JP99	1-2:Enabled 2-3:Disabled	FAN #3 selection for MG9072 chip

I²C and SGPIO Modes and Jumper Settings

This backplane can utilize I²C or SGPIO. SGPIO is the default mode and can be used without making changes to your jumpers. The following information details which jumpers must be configured to use I²C mode or restore your backplane to SGPIO mode.

SGPIO and I²C Jumper Settings (Default)

Jumper	SGPIO Jumper Setting (Default)	I²C Jumper Setting	Note
JP84	Pins 1-2	Pins 2-3	Controller ID #1

C-8 Front LED Indicators

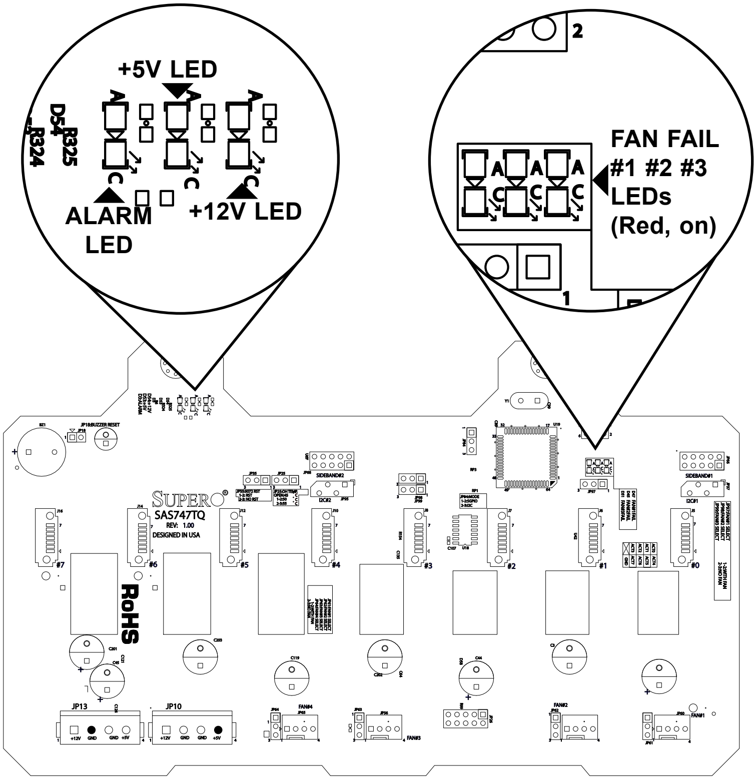

+5V LED
D54
R325
R324
A
C
ALARM LED
+12V LED
FAN FAIL #1 #2 #3 LEDs (Red, on)
2
1
SUPERO
SAS747TQ
REV: 1.00
DESIGNED IN USA
RoHS
JP13
JP10
+12V
GND
+5V
SIDEBAND#2
SIDEBAND#1
I2C#2
I2C#1
FAN#1
FAN#2
FAN#3
FAN#4
#7
#6
#5
#4
#3
#2
#1
#0

Figure C-3: Front LEDs

Front LED Indicators		
LED	**Normal State**	**Specification**
Fan #1 fail	Off	Failure in Fan #1 (Red light on, steady)
Fan #2 fail	Off	Failure in Fan #2 (Red light on, steady)
Fan #3 fail	Off	Failure in Fan #3 (Red light on, steady)
Alarm #1	Off	Overheat/drive failure
+5V	On	Backplane power failure. Light is on during normal operation.
+12V	On	Backplane power failure. Light is on during normal operation.

C-9 Rear Connectors and LED Indicators

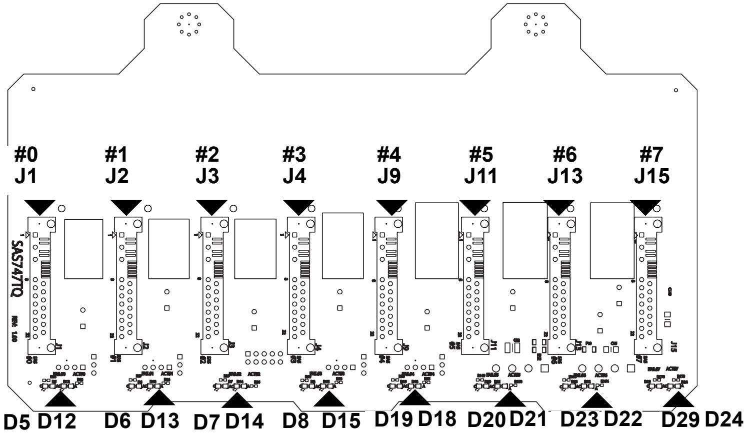

#0
J1
#1
J2
#2
J3
#3
J4
#4
J9
#5
J11
#6
J13
#7
J15
SAS747TQ
D5 D12
D6 D13
D7 D14
D8 D15
D19 D18
D20 D21
D23 D22
D29 D24

Figure C-4: Rear Connectors

Rear SAS/SATA Connectors	
Rear Connector	**SAS Drive Number**
#0	SAS/SATA HDD #0
#1	SAS/SATA HDD #1
#2	SAS/SATA HDD #2
#3	SAS/SATA HDD #3
#4	SAS/SATA HDD #4
#5	SAS/SATA HDD #5
#6	SAS/SATA HDD #6
#7	SAS/SATA HDD #7

Rear LED Indicators		
Rear LED	**Hard Drive Activity**	**Failure LED**
#0	D12	D5
#1	D13	D6
#2	D14	D7
#3	D15	D8
#4	D18	D19
#5	D21	D20
#6	D22	D23
#7	D24	D29

Appendix D

M35S and M35T1 Mobile Rack Specifications

D-1 Overview

This manual is written for system integrators, PC technicians and knowledgeable PC users who intend to integrate Supermicro's intelligent, highly expandable and cost-effective mobile rack solutions into their systems. It provides the user with detailed information for the installation and use of the M35S/M35T1 mobile rack.

The Supermicro M35S/M35T1 mobile rack Supermicro’s CSE-M35S/CSE-M35T1 mobile rack series offers the cutting edge technology with greater flexibility. The CSE-M35T1 supports five Serial ATA hot-swappable hard drives that yield an unparalleled storage capacity without compromising productivity by eliminating possible system downtime. The CSE-M35S accommodates five SCSI SCA 320/160 hard drives which provide configuration flexibility and maximum data integrity.

D-2 Product Features

The M35S/M35T1 mobile rack includes the following features:

- Supports SCSI or SATA
- Supports five 3.5" hot-swappable HDDs or three 5.25" HDDs

Operating Systems Supported

For the most up-to-date information visit the Supermicro Web site at www.supermicro.com

- Windows 2000, Windows XP, and Windows 2003
- Linux: Red Hat and SuSE

System Monitoring

- Fan failure LED
- Overheat LED indicatior
- Drive activity indicatior

D-3 An Important Note to the User

The pictures or graphics shown in this User's Guide were based upon the latest PCB revision available at the time of the publishing of this manual. The M35S/ M35T1 mobile rack you've received may or may not look exactly the same as the graphics shown in this manual.

D-4 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

Whenever possible, repack the mobile rack in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the mobile rack securely, using packaging material to surround the mobile rack so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

D-5 SATA-M35 and SCA-M942 Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

D-6 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the backplane and peripherals back into their antistatic bags when not in use.

D-7 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the mobile rack.
- Disconnect the power cable before installing or removing any cables from the mobile rack.
- Make sure that the mobile rack is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

D-8 Introduction to SATA-M35 and SCA-M942

The M35S and M35T1 mobile racks include either a SATA or SCSI backplane. The M35S model comes equipped with an SCA-M942 SCSI backplane and the M35T1 comes equipped with a SATA-M35 Serial ATA (SATA) backplane. These backplanes are designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects models SATA-M35 Revision 1.01 and SCA-M942 Revision 1.00, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

D-9 SATA-M35S Front Connectors and Jumpers

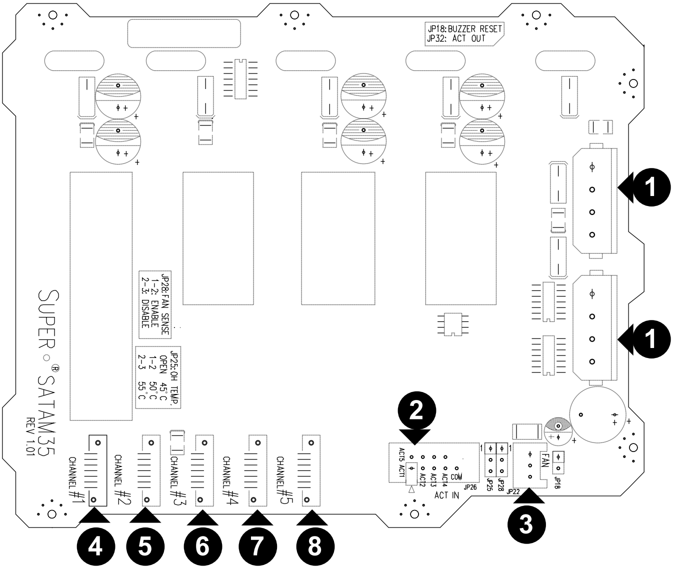

JP18: BUZZER RESET
JP32: ACT OUT
JP28: FAN SENSE
1-2: ENABLE
2-3: DISABLE
JP25: OH TEMP.
OPEN 45°C
1-2 50°C
2-3 55°C
SUPER ® SATAM35
REV 1.01
CHANNEL #1
CHANNEL #2
CHANNEL #3
CHANNEL #4
CHANNEL #5
ACT5 ACT1 ACT2 ACT3 ACT4 COM
JP26
ACT IN
JP25
JP28
JP22
FAN
JP18
1
1
2
3
4
5
6
7
8

Figure D-1: SATA-M35S Front Connectors

Front Connectors

1. 4-pin Power Connectors: JP10 and JP13
2. ACT IN: JP26
3. Fan Connector: JP22
4. SATA Port #1 (Channel 1): J5
5. SATA Port #2 (Channel 2): J6
6. SATA Port #3 (Channel 3): J7
7. SATA Port #4 (Channel 4): J8
8. SATA Port #5 (Channel 5): J10

D-10 Front Connectors and Pin Definitions

1. Mobile Rack Main Power Connectors

The 4-pin power connectors provide power to the mobile rack. See the table on the right for pin definitions.

Mobile rack Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

2. Activity LED Connector

The activity LED connector, designated JP26, is used to indicate the activity status of each hard drive. For the activity LED header to work properly, connect a SATA LED cable.

Activity LED Connector

Pin#	Definition
Act1/LED1	Channel 1
Act2/LED2	Channel 2
Act3/LED3	Channel 3
Act4/LED4	Channel 4
Act5/LED5	Channel 5

3. Fan Connector

The 3-pin connectors, designated JP22, provides power to the mobile rack fan. See the table on the right for pin definitions.

Fan Connectors

Pin#	Definition
1	Ground
2	+12V
3	Tachometer

4. - 8. SATA Ports

The SATA ports are used to connect the SATA drive cables. The five ports are designated Channel #1 - #4.

D-11 SATA-M35S Front Jumpers and Pin Definitions

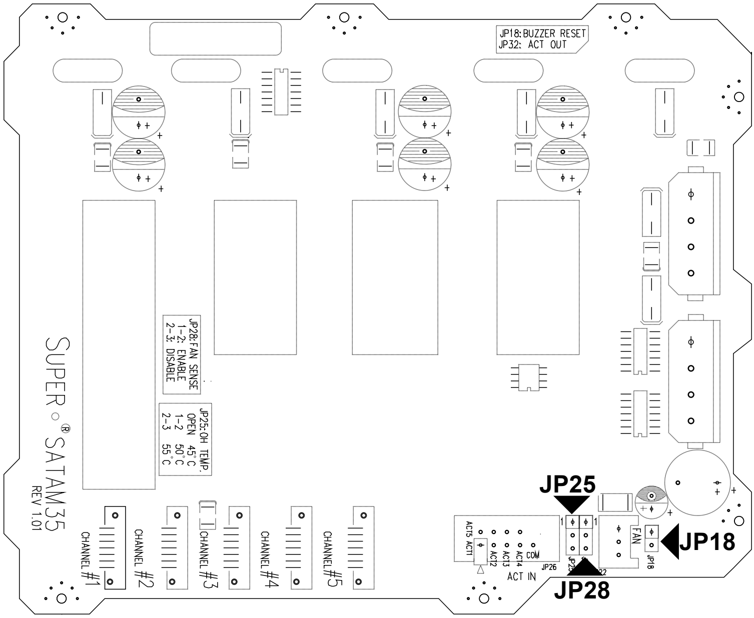

JP18: BUZZER RESET
JP32: ACT OUT
JP28: FAN SENSE
1-2: ENABLE
2-3: DISABLE
JP25: OH TEMP.
OPEN 45°C
1-2 50°C
2-3 55°C
SUPER® SATAM35
REV 1.01
CHANNEL #1
CHANNEL #2
CHANNEL #3
CHANNEL #4
CHANNEL #5
ACT5
ACT1
ACT2
ACT3
ACT4
COM
JP26
ACT IN
FAN
JP18
JP25
JP28
JP18

Figure D-2: SATA-M35S Front Jumpers

Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP18	Open (jumper off): Buzzer enabled Closed (jumper on): Buzzer disabled	Buzzer reset*
JP28	1-2: Fan enabled 2-3: Fan disabled	Fan jumper
JP25	Open (jumper off): 45ºC 1-2: 50ºC 2-3: 55ºC	Overheat temperature settings. Buzzer activated at the temperature indicated.

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

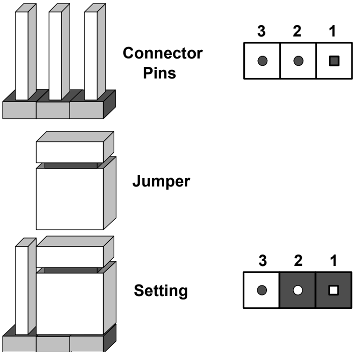
1. Hard drive failure

2. Fan failure

3. System temperature over 45º, 50º or 55º Celsius.

Explanation of Jumpers

To modify the operation of the mobile rack, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



D-12 SCA-M942 Front Connectors and Jumpers

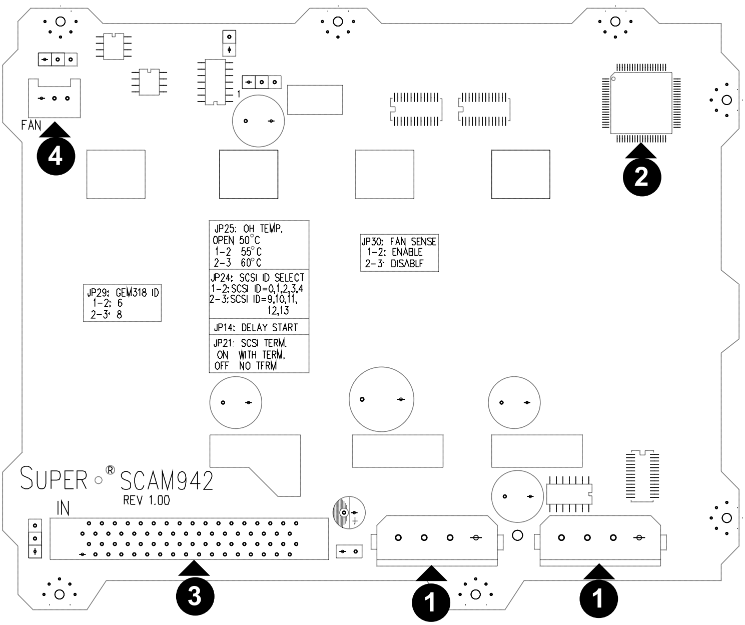

1
FAN
4
2
JP25: OH TEMP.
OPEN 50°C
1-2 55°C
2-3 60°C
JP24: SCSI ID SELECT
1-2:SCSI ID=0,1,2,3,4
2-3:SCSI ID=9,10,11,12,13
JP14: DELAY START
JP21: SCSI TERM.
ON WITH TERM.
OFF NO TERM
JP30: FAN SENSE
1-2: ENABLE
2-3: DISABLE
JP29: GEM318 ID
1-2: 6
2-3: 8
SUPER® SCAM942
REV 1.00
IN
3
1
1

Figure D-3: SCA-M942 Front Connectors

Front Connectors

1. 4-pin Power Connectors: JP10 and JP13
2. QLogic Gem 318 chip
3. 68-pin SCSI connector
4. Fan Connector: JP22

D-13 SCA-M942 Front Connectors and Pin Definitions

1. Mobile Rack Main Power Connectors

The 4-pin power connectors, designated JP10 and JP13, provide power to the mobile rack. See the table on the right for pin definitions.

Mobile rack Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

2. QLogic GEM 318 Chip

The QLogic Gem 318 chip is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

3. SCSI Connector

The 68-pin SCSI connector allows a SCSI cable to be connected to the backplane.

4. Fan Connector

The 3-pin fan connector provides power to the mobile rack fan. See the table on the right for pin definitions.

Fan Connectors

Pin#	Definition
1	Ground
2	+12V
3	Tachometer

D-14 SCA-M942 Front Jumpers and Pin Definitions

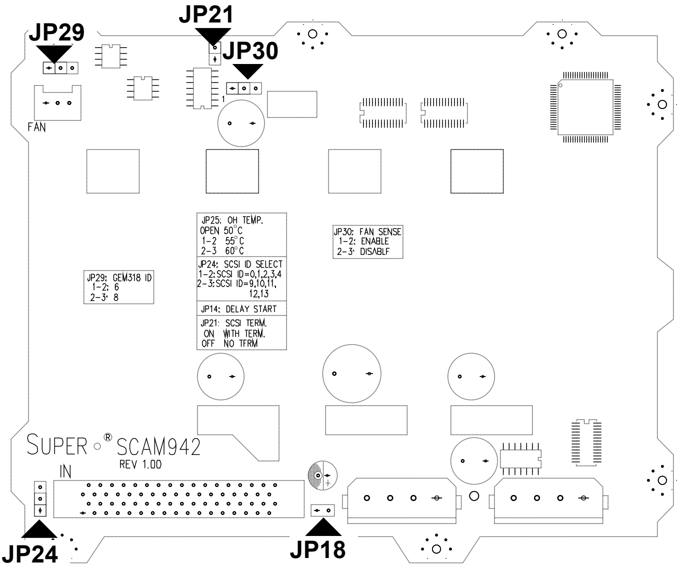

JP29
JP21
JP30
FAN
JP25: OH TEMP.
OPEN 50°C
1-2 55°C
2-3 60°C
JP24: SCSI ID SELECT
1-2: SCSI ID=0,1,2,3,4
2-3: SCSI ID=9,10,11,
12,13
JP14: DELAY START
JP21: SCSI TERM.
ON WITH TERM.
OFF NO TERM
JP30: FAN SENSE
1-2: ENABLE
2-3: DISABLE
JP29: GEM318 ID
1-2: 6
2-3: 8
SUPER® SCAM942
REV 1.00
IN
JP24
JP18

Figure X-4: SCA-M942 Front Jumpers

Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP18	Open (jumper off) Disabled (Default) Close (jumper on) Enabled	Buzzer reset*
JP21	Open (jumper off) Disabled Close (jumper on) Enabled (Default)	SCSI termination
JP24	1-2: SCSI IDs 0,1,2,3,4 (Default) 2-3: SCSI IDs 9, 10, 11, 12, 13	SCSI ID selection
JP29	1-2: ID6 (Default) 2-3: ID8	GEM 318 IDs
JP30	1-2: Enabled (Default) Alarm will sound if no fan is present 2-3: Disabled	Fan

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure
2. Fan failure
3. System temperature over 45º Celsius.

D-15 Preparation for Installation

Tools Required

The following tools are required to install the mobile rack into the chassis:

- Phillips head screwdriver
- Antistatic strap (recommended)

Important Safety Guidelines

This product should be assembled and/or serviced by qualified and experienced technicians. To avoid personal injury and property damage, carefully follow the guidelines listed below.

Safety Guidelines

1. Turn off all peripheral devices and the power supply connected to the chassis.
2. Disconnect the chassis from any power source.
3. When disconnecting cables, label them for easy identification.
4. Use a grounded wrist strap designed to prevent static discharge when handling components.
5. Save all the screws and fasteners for later use and label them for easy identification.)
6. Follow the installation procedures in the following section of this manual to remove and install the hard drives, cooling fan, and the back panel of the mobile rack.

Warning! Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com/products/nfo/storage.cfm

D-16 Installation Procedures

Use the following installation procedures to set up the mobile rack.

WARNING!
SAS IDs are assigned automatically by the backplane. Do not set ID's manually on the drives.

SAS termination is enabled by default on the SAS backplane.

Removing Hard Drive Carriers from the Mobile Rack

The hard drives of the M35S and M35T1 mobile racks are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help to promote proper airflow within the mobile rack drive bays.

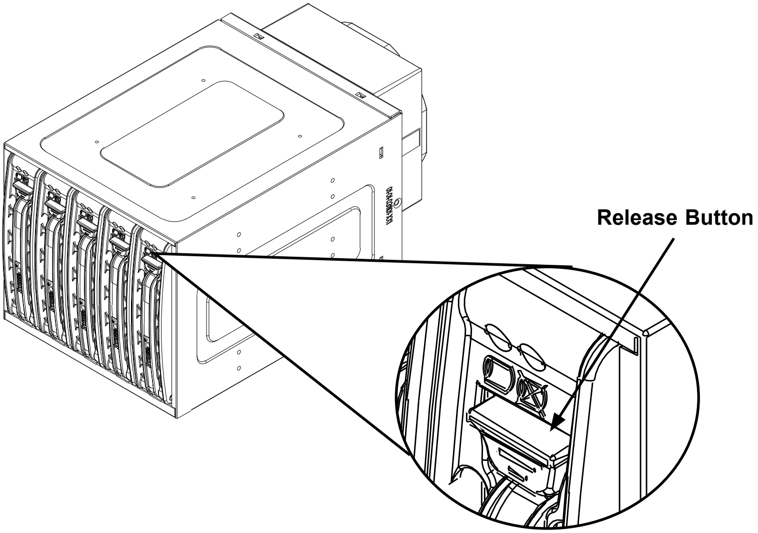


Figure D-5: Hard Drive Carrier Release Button

Removing Hard Drive Carriers from the Mobile Rack

1. Push the release button on the hard drive carrier, which will extend the drive handle.

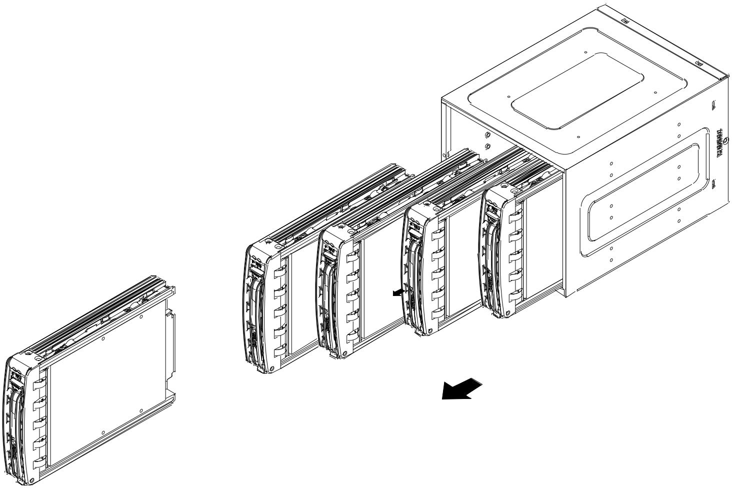


Figure D-6: Removing Hard Drives From the Mobile Rack

2. Use the drive handle to carefully pull the drive from the mobile rack.

Installing Hard Drives into the Hard Drive Carriers

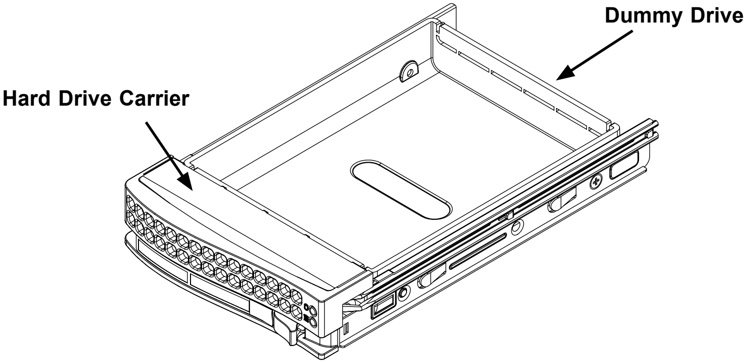


Figure D-7: The Hard Drive Carrier and Dummy Drive

Warning: Except for short periods of time while swapping hard drives, do not operate the server with the mobile rack hard drive bays empty. The hard drive carrier must have a hard drive or dummy drive installed.

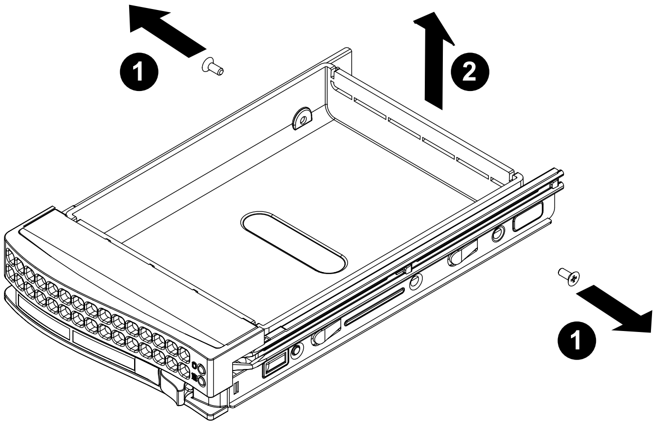


Figure D-8: Removing the Dummy Drive from the Hard Drive Carrier

Installing a Hard Drive into the Hard Drive Carrier

1. Remove the two screws holding securing the dummy drive to the hard drive carrier.

2. Remove the dummy drive from the hard drive carrier.

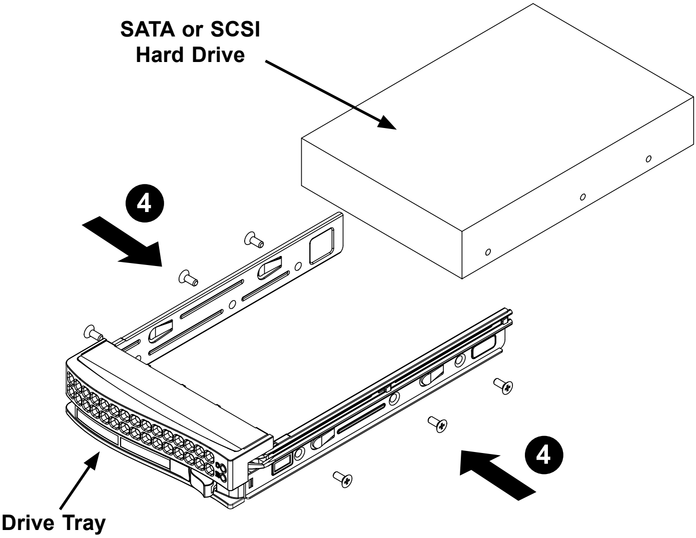


Figure D-9: Installing the Hard Drive into the Hard Drive Carrier

3. Install a new hard drive into the hard drive carrier with the printed circuit board side facing downward so that the mounting holes in the hard drive align with those in the hard drive carrier.

4. Secure the hard drive to the hard drive carrier with the six screws provided.

5. Return the hard drive carrier to the mobile rack. Make sure that the hard drive carrier handle is returned to the closed and locked position. Repeat these steps for each hard drive to be installed.

Connecting Cables to the Mobile Rack

Before connecting cables the mobile rack, the exhaust fan must be removed. In some circumstances, the backplane may need to be removed.

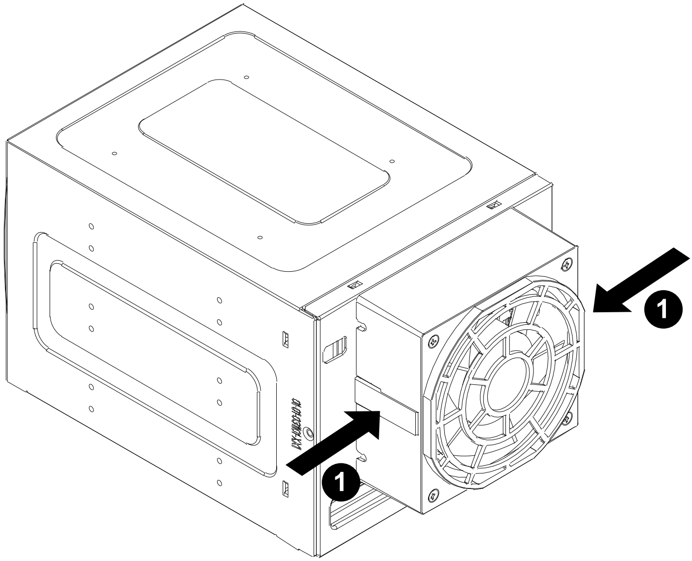


Figure D-10: Removing Mobile Rack Fan

Removing the Exhaust Fan and Connecting Cables

1. Simultaneously press inward on the tabs on each side of the fan housing.

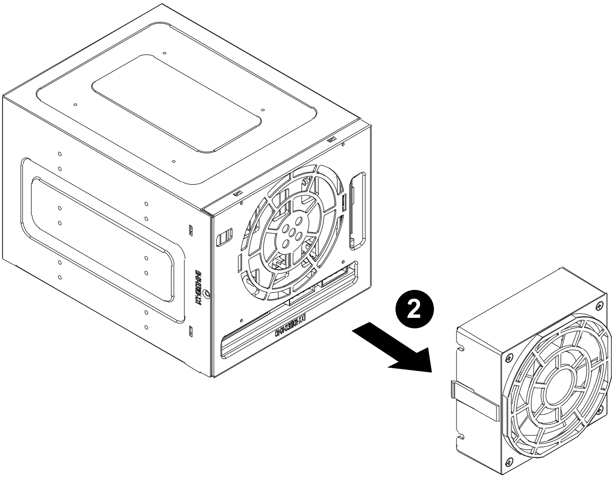


Figure D-11: Removing Mobile Rack Fan

2. Pull the exhaust fan off the rear of the mobile rack.

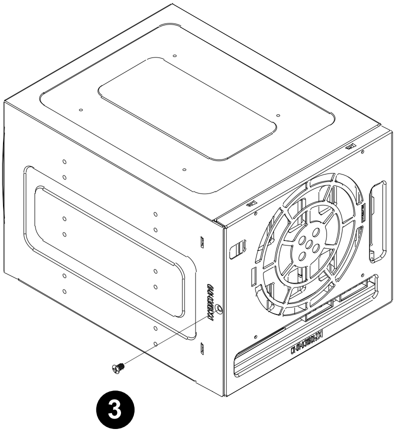


Figure D-12: Removing the Bracket Screw

3. Remove the bracket screw from the side of the mobile rack.

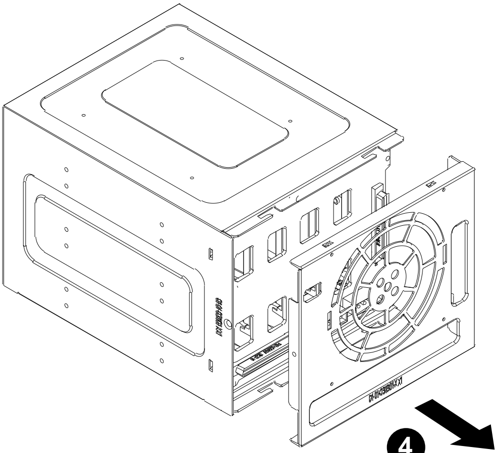


Figure D-13: Removing Mobile Rack Bracket

4. Pull the bracket from the rear of the mobile rack.

5. Connect the SATA cables and power cables to the backplane of the mobile rack.

6. Replace the bracket, bracket screw, and fan on the mobile rack and reconnect power to the chassis.

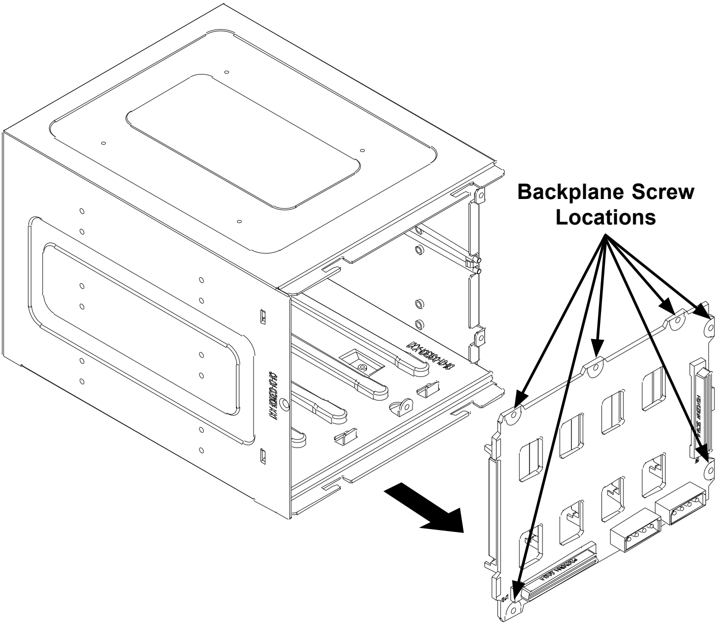


Figure D-14: Removing the Mobile Rack Backplane (Optional)

Additional Optional Installation Information

If necessary, before reassembling the mobile rack, the backplane may be removed. To remove the mobile rack backplane, remove the six screws securing the backplane to the mobile rack. Carefully pull the backplane from the rear of the mobile rack.

Appendix E

M35TQ Mobile Rack Specificaitons

E-1 Overview

This manual is written for system integrators, PC technicians and knowledgeable PC users who intend to integrate Supermicro's intelligent, highly expandable and cost-effective mobile rack solutions into their systems. It provides the user with detailed information for the installation and use of the M35TQ mobile rack.

The Supermicro M35TQ mobile rack supports SAS or SATA hard drives, and can accomodate up to five 3.5" hard drives or three 5.25" hard drives. The M35TQ showcases today's most advanced technological innovations in modular connectivity and data transferability, laying the foundation for reliable, effective and scalable solutions for tomorrow's data communications industry.

E-2 Product Features

The M35TQ mobile rack includes the following features:

- Supports SAS or SATA
- Supports five 3.5" hot-swappable HDDs or three 5.25" HDDs

Operating Systems Supported

For the most up-to-date information visit the Supermicro Web site at www.supermicro.com

- Windows 2000, Windows XP, and Windows 2003
- Linux: Red Hat and SuSE

System Monitoring

- Fan failure LED
- Overheat LED indicatior
- Drive activity indicatior

E-3 An Important Note to the User

The pictures or graphics shown in this User's Guide were based upon the latest PCB revision available at the time of the publishing of this manual. The M35TQ mobile rack you've received may or may not look exactly the same as the graphics shown in this manual.X-4 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the backplane and peripherals back into their antistatic bags when not in use.

E-4 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the mobile rack.
- Disconnect the power cable before installing or removing any cables from the mobile rack.
- Make sure that the mobile rack is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

E-5 Introduction to the SAS-M35TQ Backplane

The M35TQ mobile rack contains a SAS-M35TQ backplane. The SAS-M35TQ backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SAS-M35T Revision 1.01, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

E-6 Front Connectors and Jumpers

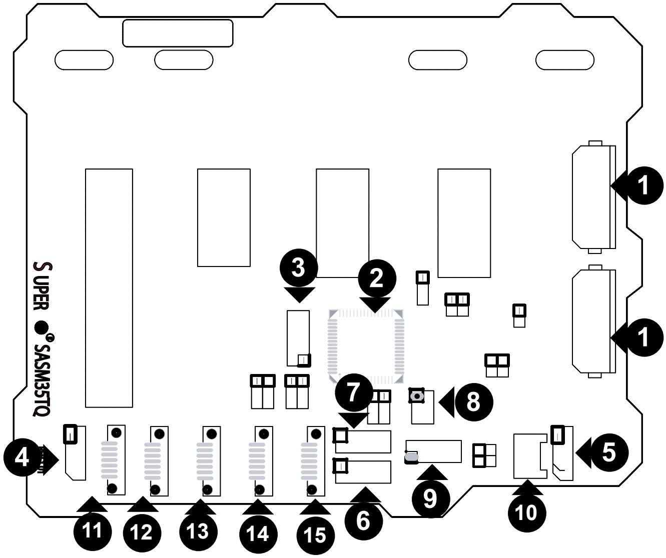


Figure E-1: Front Connectors

Front Connectors

1. 4-pin Power Connectors: JP10 and JP13
2. MG9072 Chip
3. JTAG Connector: JP47
4. I^{2}C Connector #1: JP44
5. I^{2}C Connector #2: JP45
6. Sideband Connector #1: JP51
7. Sideband Connector #2: JP52
8. Upgrade: JP46
9. ACT IN: JP26
10. Fan Connector: JP22
11. SAS Port #0: J5
12. SAS Port #1: J6
13. SAS Port #2: J7
14. SAS Port #3: J8
15. SAS Port #4: J10

E-7 Front Connectors and Pin Definitions

1. Mobile Rack Main Power Connectors

The 4-pin power connectors, designated JP10 and JP13, provide power to the mobile rack. See the table on the right for pin definitions.

Mobile rack Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

2. MG9072 Chip

The MG9072 is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

3. JTAG Connector

The JTAG connector, designated JP47, is used for diagnostic purposes only.

4. and 5. I^{2}C Connectors

The I^{2}C connectors, designated JP44 and JP45, are used to monitor the HDD activity and status. See the table on the right for pin definitions.

I^{2}C Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

6. and 7. Sideband Headers

The sideband headers are designated JP51 and JP52. For SES-2 to work properly, an 8-pin sideband cable must be connected. See the table to the right for pin definitions.

Sideband Headers

Pin #	Definition	Pin #	Definition
2	Mobile rack Addressing (SB5)	1	Controller ID (SB6)
4	Reset (SB4)	3	GND (SB2)
6	GND (SB3)	5	SDA (SB1)
8	Mobile rack ID (SB7)	7	SCL (SB0)
10	No Connection	9	No Connection

8. Upgrade Connector

The upgrade connector, designated JP46, is used for diagnostic purposes only. This connector should only be used by a certified and experienced technician.

9. Activity LED Header

The activity LED header, designated JP26, is used to indicate the activity status of each SAS drive. For the activity LED header to work properly, connect a 10-pin LED cable.

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#0	6	ACT IN#4
2	ACT IN#1	7	ACT IN#5
3	ACT IN#2	8	ACT IN#6
4	ACT IN#3	9	ACT IN#7
5	Ground	10	Empty

10. Fan Connector

The 3-pin connectors, designated JP22, provides power to the mobile rack fan. See the table on the right for pin definitions.

Fan Connectors

Pin#	Definition
1	Ground
2	+12V
3	Tachometer

11 - 15. SAS/SATA Ports

The SAS/SATA ports are used to connect the SAS/SATA cables from the ports to the hard drives. The five ports are designated #0 - #4.

E-8 Front Jumper Locations and Pin Definitions

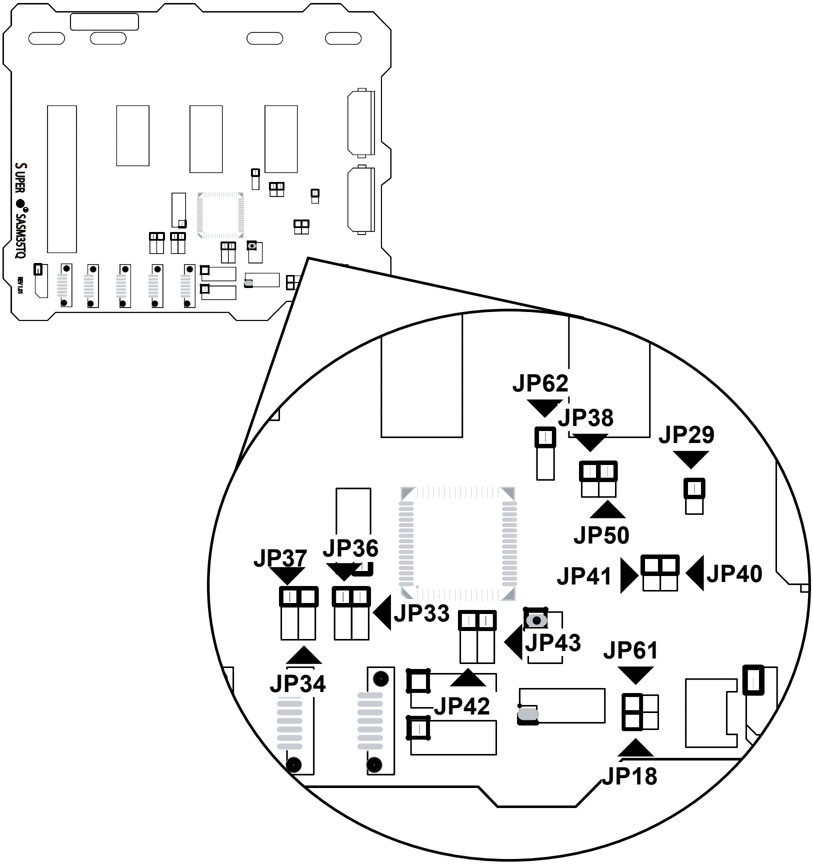
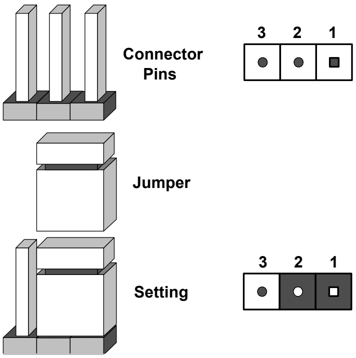

SUPER SASM35TQ
REV1.01
JP62
JP38
JP29
JP50
JP41
JP40
JP37
JP36
JP33
JP43
JP61
JP34
JP42
JP18

Figure E-2: Front Jumpers

Explanation of Jumpers

To modify the operation of the mobile rack, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.


Connector Pins
3 2 1
Jumper
Setting
3 2 1

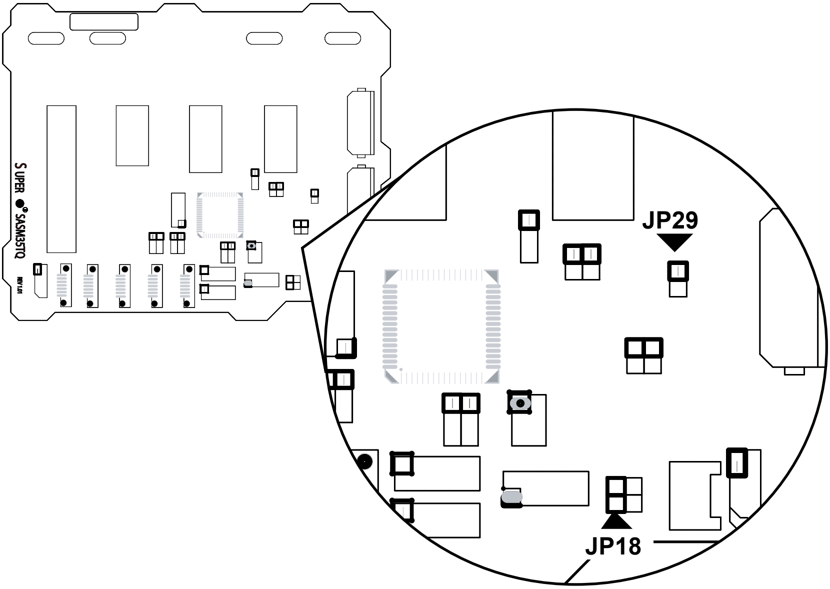


Figure E-3: Buzzer and Chip Reset Jumpers

Buzzer and Chip Reset Jumper Settings

Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP18	Open: Enabled Closed: Disabled	Buzzer reset*
JP29	Open: Default Closed: Reset	MG9072 chip reset

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure

2. Fan failure

3. System temperature over 45º Celsius.

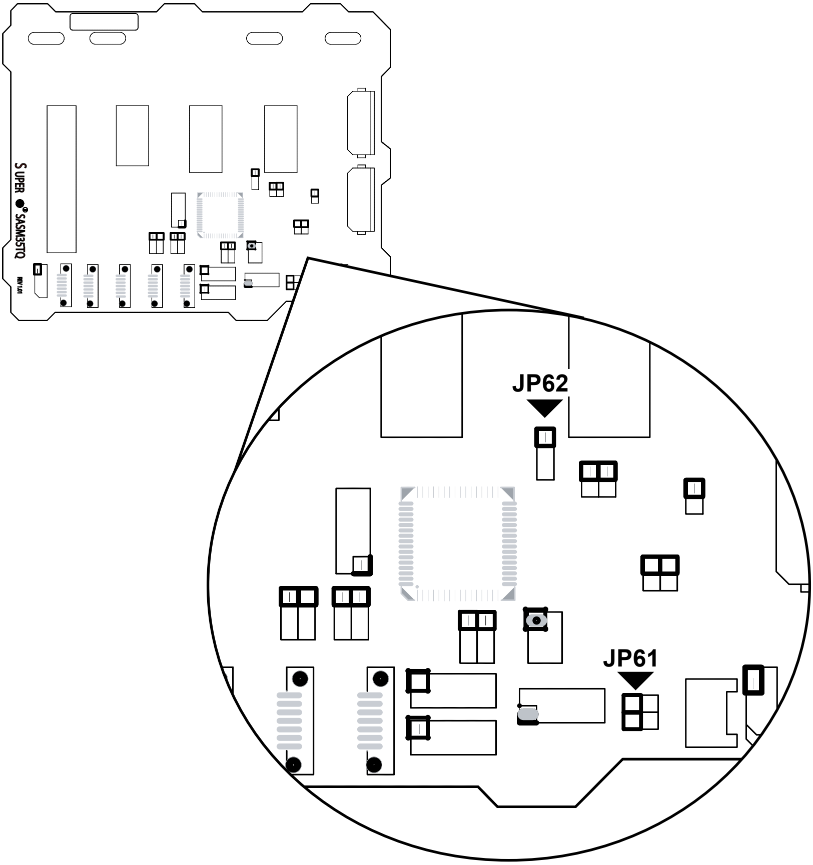

SUPER SASM35TQ
REV 1.01
JP62
JP61

Figure E-4: Fan Jumpers

Fan Jumper Settings

This mobile rack can utilize up to four fans. To use each fan, you must configure both jumpers as instructed below.

Fan Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP61	Closed: With fan Open: No fan	FAN#1
JP62	1-2: With fan 2-3: No fan	FAN#1

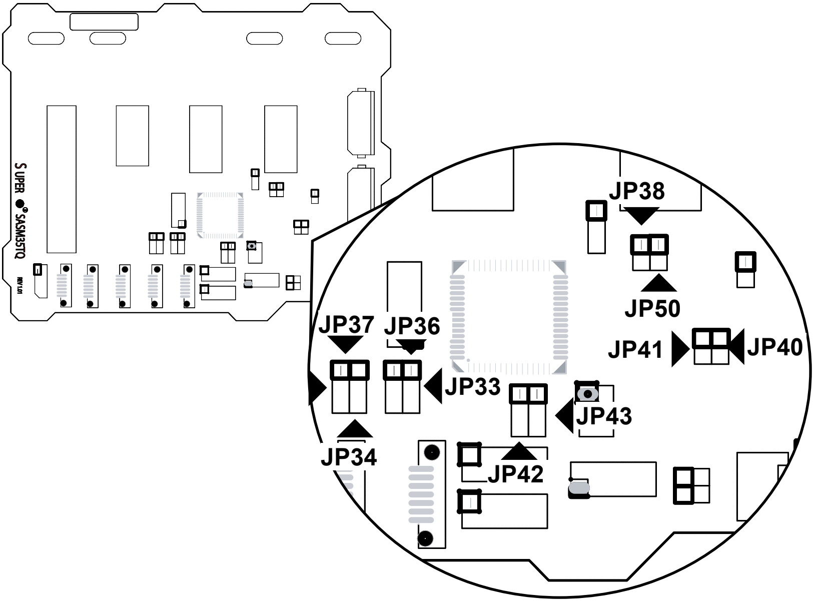


Figure E-5: I²C and SGPIO Jumpers

I²C and SGPIO Modes and Jumper Settings

This mobile rack can utilize I²C or SGPIO. I²C is the default mode and can be used without making changes to your jumpers. The following information details which jumpers must be configured to use SGPIO mode or restore your mobile rack to I²C mode.

I²C/SGPIO Settings			
Jumper	**I²C Setting (Default)**	**SGPIO Setting**	**Description**
JP33	2-3	1-2	Controller ID #1
JP34	1-2: ID#0	1-2: ID#0	Backplane ID #1
JP36	2-3	1-2	Controller ID #2
JP37	2-3: ID#1	1-2: ID#0	Backplane ID #2
JP38	Closed	Open	I²C reset #2
JP40	Open	Closed	I²C reset SDOUT #1
JP41	Open	Closed	I²C reset SDOUT #2
JP42	2-3	1-2	Backplane ID SDIN #1
JP43	2-3	1-2	Backplane ID SDIN #2
JP50	Closed	Open	I²C reset #1

E-9 Rear Connectors and LED Indicators

The rear of the mobile rack backplane has SAS/SATA connectors and LEDs which display activity or failure status for each of the drives, as well as overheat and drive failure status.

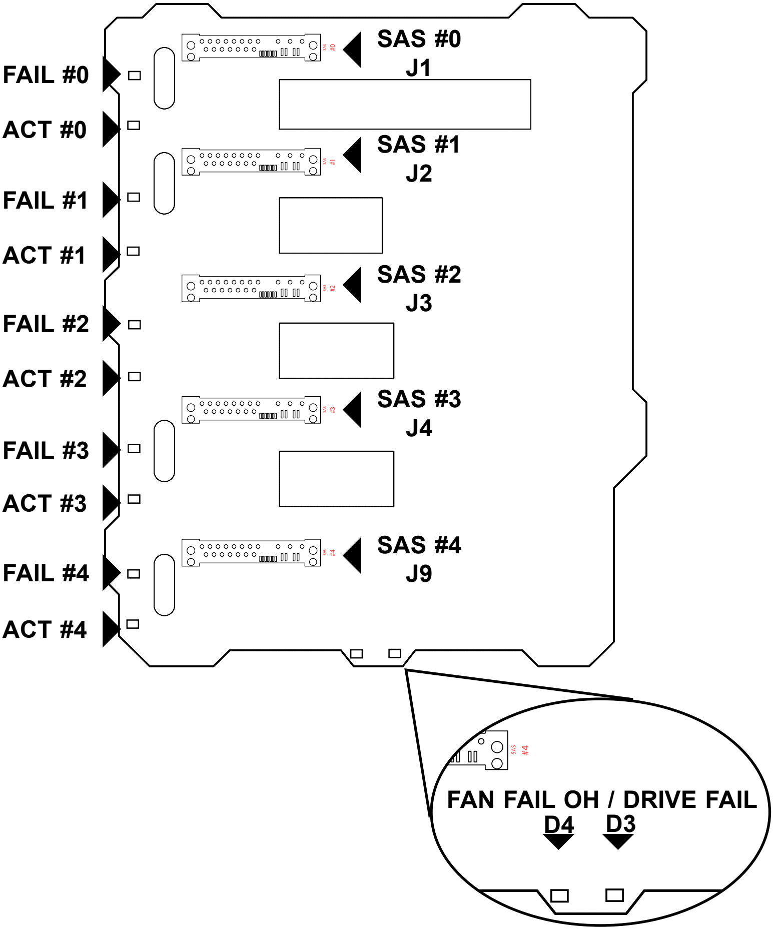

SAS #0
J1
SAS #1
J2
SAS #2
J3
SAS #3
J4
SAS #4
J9
FAIL #0
ACT #0
FAIL #1
ACT #1
FAIL #2
ACT #2
FAIL #3
ACT #3
FAIL #4
ACT #4
FAN FAIL OH / DRIVE FAIL
D4
D3

Figure E-6: Rear Connectors and LED Indicators

Rear SAS/SATA Connectors	
Rear Connector	**SAS/SATA Drive Number**
SAS #0	SAS/SATA HHD #0
SAS #1	SAS/SATA HHD #1
SAS #2	SAS/SATA HHD #2
SAS #3	SAS/SATA HHD #3
SAS #4	SAS/SATA HHD #4

Rear LED Indicators		
Rear LED	**Hard Drive Activity**	**Failure LED**
SAS #0	D12	D5
SAS #1	D13	D6
SAS #2	D14	D7
SAS #3	D15	D8
SAS #4	D18	D19

Mobile Rack Backplane LEDs		
LED	**Hard Drive Activity**	**Failure LED**
D3	On	Drive failure LED indicator (Red light flashing, buzzer on)
D4	On	Fan failure overheat LED indicator (Red light flashing, buzzer on)

E-10 Preparing for Installation

Tools Required

The following tools are required to install the mobile rack into the chassis:

- Phillips head screwdriver
- Antistatic strap (recommended)

Important Safety Guidelines

This product should be assembled and/or serviced by qualified and experienced technicians. To avoid personal injury and property damage, carefully follow the guidelines listed below.

Safety Guidelines

1. Turn off all peripheral devices and the power supply connected to the chassis.
2. Disconnect the chassis from any power source.
3. When disconnecting cables, label them for easy identification.
4. Use a grounded wrist strap designed to prevent static discharge when handling components.
5. Save all the screws and fasteners for later use and label them for easy identification.)
6. Follow the installation procedures in the following section of this manual to remove and install the hard drives, cooling fan, and the back panel of the mobile rack.

E-11 Installation Procedures

Use the following installation procedures to set up the mobile rack.

WARNING!
SAS IDs are assigned automatically by the backplane. Do not set ID's manually on the drives.

SAS termination is enabled by default on the SAS backplane.

Installing Hard Drives into the Mobile Rack

The hard drives of the M35TQ mobile rack are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help to promote proper airflow within the mobile rack drive bays.

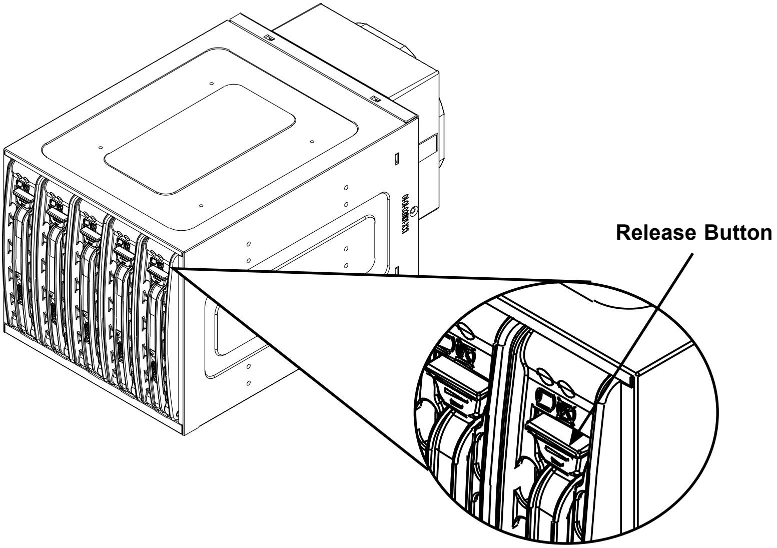


Figure E-7: Hard Drive Release Button

Removing Hard Drives from the Mobile Rack

1. Push the release button on the hard drive, which will extend the drive handle
2. Use the drive handle to carefully pull the drive from the mobile rack.

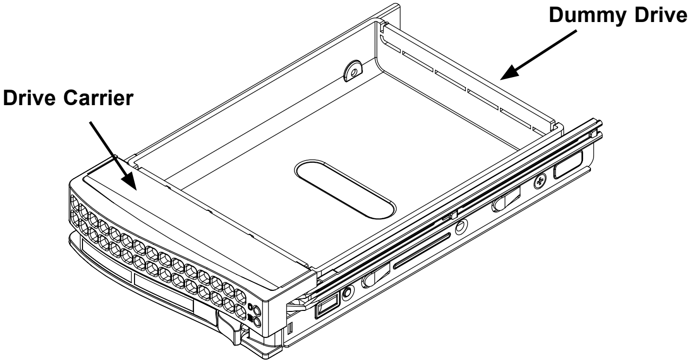


Figure E-8: Chassis Drive Carrier

Warning: Except for short periods of time while swapping hard drives, do not operate the server with the mobile rack hard drive bays empty. The hard drive carrier must have a hard drive or dummy drive installed.

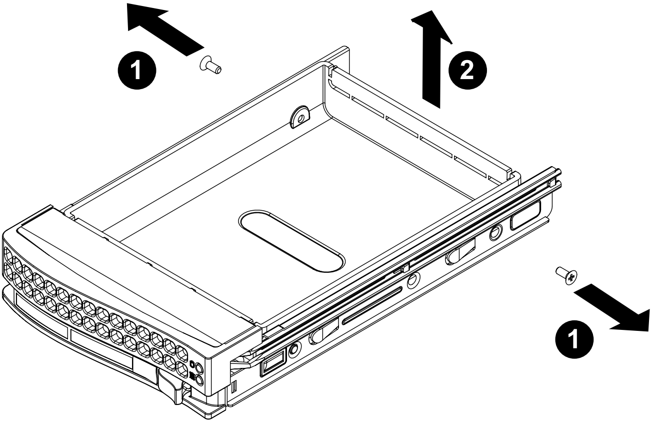


Figure E-9: Removing Dummy Drive from Carrier

Installing a Hard Drive into the Hard Drive Carrier

1. Remove the two screws holding securing the dummy drive to the carrier.

2. Remove the dummy drive from the carrier.

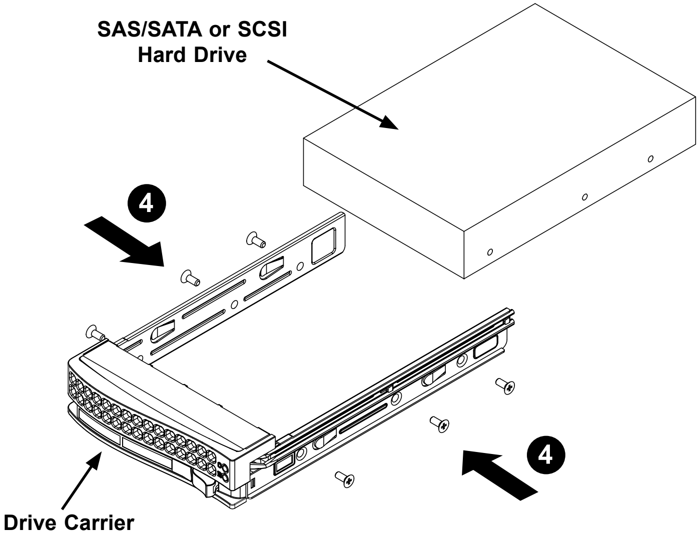


Figure E-10: Installing a Hard Drive

3. Install a new drive into the carrier with the printed circuit board side facing downward so that the mounting holes in the drive align with those in the carrier.

4. Secure the hard drive to the carrier with the six screws provided.

5. Return the drive carrier to the mobile rack. Make sure that the drive carrier handle is returned to the closed and locked position. Repeat these steps for each hard drive you want to install.

Warning! Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com/products/nfo/storage.cfm

Connecting Cables to the Mobile Rack

Before connecting cables the mobile rack, the exhaust fan must be removed. In some circumstances, the backplane may need to be removed.

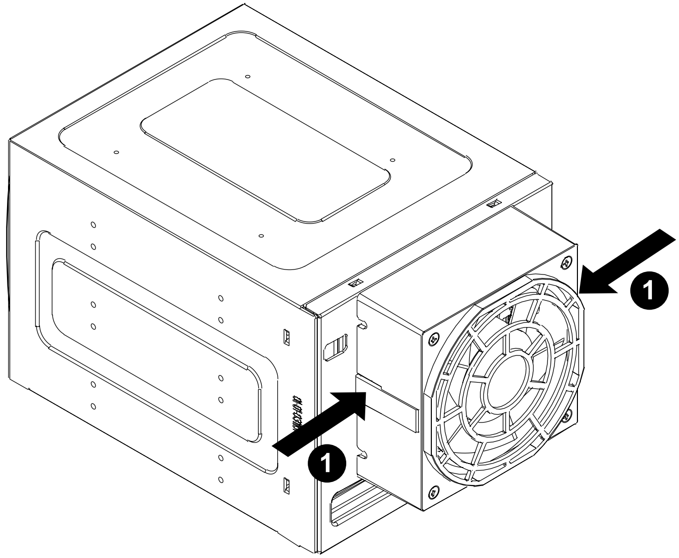


Figure E-11: Removing Mobile Rack Fan

Removing the Exhaust Fan and Connecting SAS/SATA Cables

1. Simultaneously press inward on the tabs on each side of the fan housing.

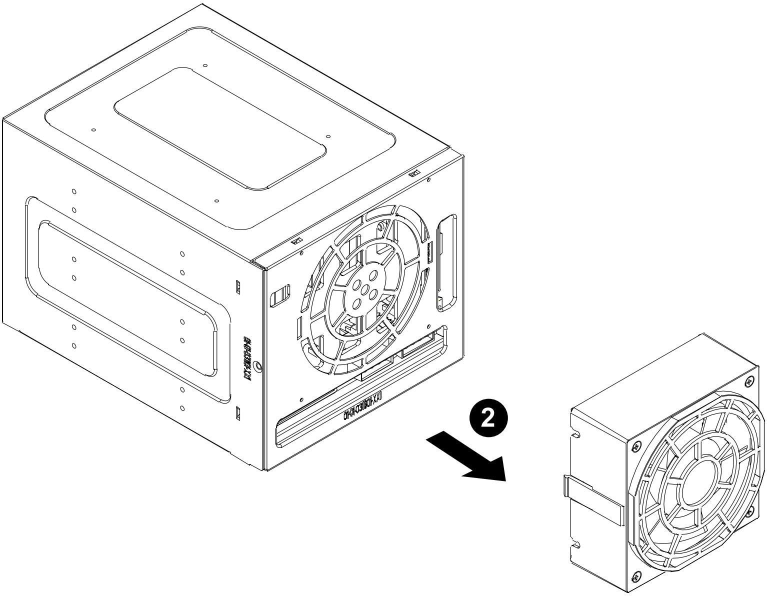


Figure E-12: Removing Mobile Rack Fan

2. Pull the exhaust fan off the rear of the mobile rack.

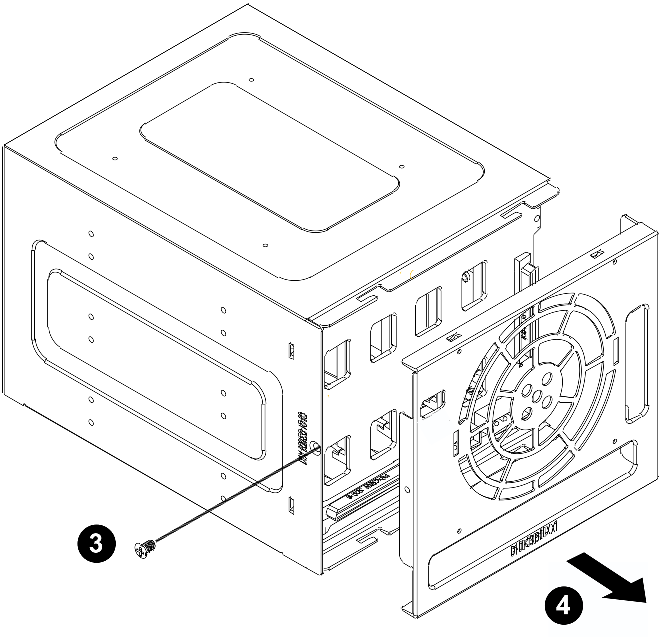


Figure
E-13: Removing Mobile Rack Fan

3. Remove the bracket screw from the side of the mobile rack.

4. Pull the bracket from the rear of the mobile rack.

5. Connect the SAS/SATA cables and power cables to the backplane of the mobile rack.

6. Replace the bracket, bracket screw, and fan on the mobile rack and reconnect power to the chassis.

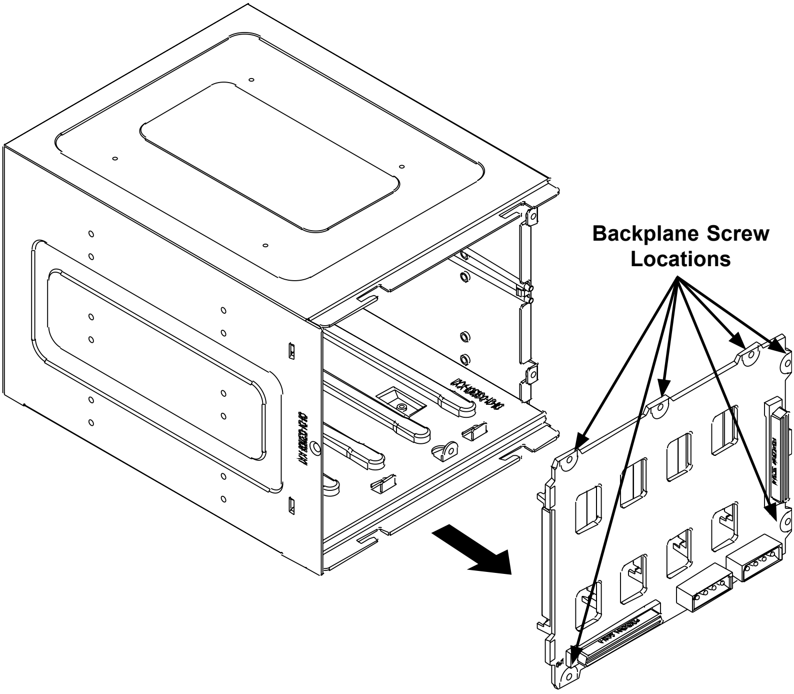


Figure E-14: Removing Mobile Rack Backplane (Optional)

Additional Optional Installation Information

If necessary, before reassembling the mobile rack, the backplane may be removed. To remove the mobile rack backplane, remove the six screws securing the backplane, and carefully pull the backplane from the rear of the mobile rack.

Notes

Disclaimer (cont.)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.